THE OIL WEEKLY

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Oil Man's Calendar

SEPT. 6–10	American Chemical Society, Rochester, New York.
8– 9	West Virginia Oil & Natural Gas Association, Charleston.
15–17	National Petroleum Association, Hotel Traymore, Atlantic City.
16–19	Pacific Oil Show & Black Gold Festival, Taft, California.
24–25	Michigan Petroleum Association, Traverse City.
SEPT. 27 OCT. 1	American Gas Association, Cleveland, Ohio.
OCT. 7–8	American Institute of Mining and Metallurgical Engineers, Petroleum Division, Fall Meeting, Oklahoma City, Oklahoma.
11–15	National Safety Congress & Exposition, Kansas City, Missouri.
11–16	Oil-World Exposition, Houston, Texas.
13–14	Indiana Independent Petroleum Association, Indianapolis, Ind.
14–16	American Association of Petroleum Geologists, Mid-Year Meeting, Pittsburgh, Pennsylvania.
14–16	Independent Petroleum Association of America, Houston, Texas.
18–22	American Welding Society, Atlantic City, New Jersey.
18–23	American Institute of Mining & Metallurgical Engineers, Atlantic City, New Jersey.
29–30	Mid-Continent Oil and Gas Association, Texas Division, Dallas, Texas.
NOV. 8–12	American Petroleum Institute, (Annual), Chicago, Illinois.
1938 MAR. 16–18	Annual Meeting, American Association of Petroleum Geologists, Roosevelt Hotel, New Orleans, La.

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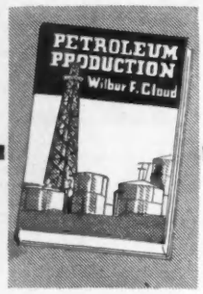

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LOOKING AHEAD

WITH THE EDITOR

South Texas Advancing Rapidly . . .
Special South Texas Number . . .
An Eleven-Color Insert Map . . .

SOUTHWEST TEXAS may well be called the outstanding oil district of the United States today. While in some respects it does not lead, it certainly is progressing faster than any other territory.

No region, classifying all states outside of Texas as such, can equal its record in number of completions during 1937. Neither are they attaining its rate of production and crude reserve increase. And, as far as new discoveries are concerned —well, it's tops, without question.

Crude production in South Texas this year is running 57 percent higher than last year, compared with a national increase of 20 percent. Consequently, it is producing a much larger portion of the United States oil. Likewise, its crude reserves are increasing more than that of the nation. During the past 2½ years, estimates on the producible crude supply discovered that remain beneath South Texas soils have advanced 147 percent, in contrast with 7.3 percent in the country.

In the number of new fields and producing zones being found, the region in the first half of 1937 discovered more than it did during all 1936. The 55 strikes made the first six months of 1937 represented about one-half of all discoveries in the United States. With 1832 completions so far in 1937, South Texas leads the second most active state, Oklahoma, by 311 tests.

This important and vastly interesting story of South Texas' advancement and achievement is to be the "theme song" of THE OIL WEEKLY's next issue. Our August 30 number will present complete historical, development and status data on such a variety of phases and activity, and in such a handy fashion, we expect it to serve a very helpful and needed purpose for the industry.

Editorial treatment of the South Texas Number will be similar to previous South Texas editions, except that it is to be improved and bring developments up to date.

There will be a large part of the book devoted to factual tabulated history of every field in the region. This will give complete information as to location, discovery, geological structure, producing formations, producing area, extent of development, deepest test, principal leaseholders, oil outlets, gravity, etc.

Several feature articles will trace important developments. An article on South Texas crude reserves will show the increase being made, rate of discoveries, and, besides other data, the reserves by individual fields. There will be a resume of operating problems and practices, an article on market outlet facilities and their growth, the trend toward deep drilling, etc.

Further enhancing the great value of this publication, which has been months in the making, will be the most unique district map ever published for the oil industry. It will be presented in large size in 11 colors, so as to show the producing horizons in each and every field. Moreover, a typical geological column for the different districts of South Texas will be shown in color on the map.

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The changing panorama this week

THE saga of oil is still a success story. The industry continues to prosper, and the prosperity promises to continue—at least for some months.

Approaching 1929 Prosperity

Connoisseur of fuels, with which to burn the breeze, the industry has been among the first to reach the fabulous corner where prosperity lies.

Now rounding the corner at the highest rates of activity it ever has attained, the industry is challenging the record of earnings that it set in 1929.

If it does not falter or stumble in the remaining four months of the year, the oil business will show for 1937 about 50 percent more profit than in 1936, and consequently about the same profit as in 1929.

Such an improvement over last year is definitely revealed by reports on oil company earnings for the first six months; and the third quarter, now nearing the end, is being referred to as possibly the most profitable yet experienced. It would require unusual, unforeseen adversities in the closing months of the year to spoil the picture that is being painted.

Oil Demand Holding Up

While there has been much talk in recent months of a possible slowing down of business generally in the summer-fall period, the oil industry so far has not experienced any such let-down, and has shown no indication of any impending recession.

On the contrary, the Bureau of Mines expects crude oil and gasoline demand to continue showing about the same improvement over last year during September as in earlier months this year. The bureau's forecast indicates that in September the crude oil requirements will be 9 percent above those in September last year and that gasoline demand will be up 10 percent. Such gains are about the same as for the earlier part of the year.

Effective Control Expected

Since large demand means little in the absence of a proper balance of supply with the demand, however, attention still must center on regulation of the wells and refineries of the country.

In view of anxiety that has attended the comparatively lax crude control of August, conservation officials have indicated they will tighten the restraints in September.

This prospect has helped to restore steadiness in the oil industry's markets, and prices at present are generally firm.

Inventory Position Favorable

Meanwhile, the markets and the earning power of oil companies are supported by an advantageous inventory situation.

Although petroleum demand has been running this year around 10 percent higher than last year, crude oil stocks are only slightly larger than at this time last year.

Present gasoline stocks, too, are justified by mar-

BELOW: One of the first Illinois groups organized in connection with the oil activity, which has reached boom proportions in the southern part of that state, is the Illinois Basin Scout Check Meeting. Members hold a luncheon meeting at the Hotel U. S. Grant in Mattoon every Tuesday. The picture was taken following a recent meeting. Members shown are, left to right, front row: Paul E. Romine, Gulf Refining Company; James Goin, Kingwood Oil Company; A. H. Emerson, Sun Oil Company; E. E. Stallard, Carter Oil Company; A. E. Black, Phillips Petroleum Company; W. K. Brewster, Magnolia Petroleum Company; C. C. White, Ohio Oil Company; P. P. Wolcott, Adams Oil & Gas Company, and W. W. Engle, Superior Oil Company of California. Back row, left to right: W. B. DeMars, The Texas Company; W. R. Wilson, Jr., Pure Oil Company; W. B. Sinclair, Amerada Petroleum Corporation; J. L. Fosness, Cities Service Oil Company; E. C. Malroney, Shell Petroleum Corporation; William H. Cordell, Tide Water Oil Company; W. P. Johnson, Gulf Refining Company, and William Cartmell, Carter Oil Company. Officers are: Messrs. Romine, czar; Black, assistant czar; Engles, secretary-treasurer, and Wilson Malroney, members of the executive committee.

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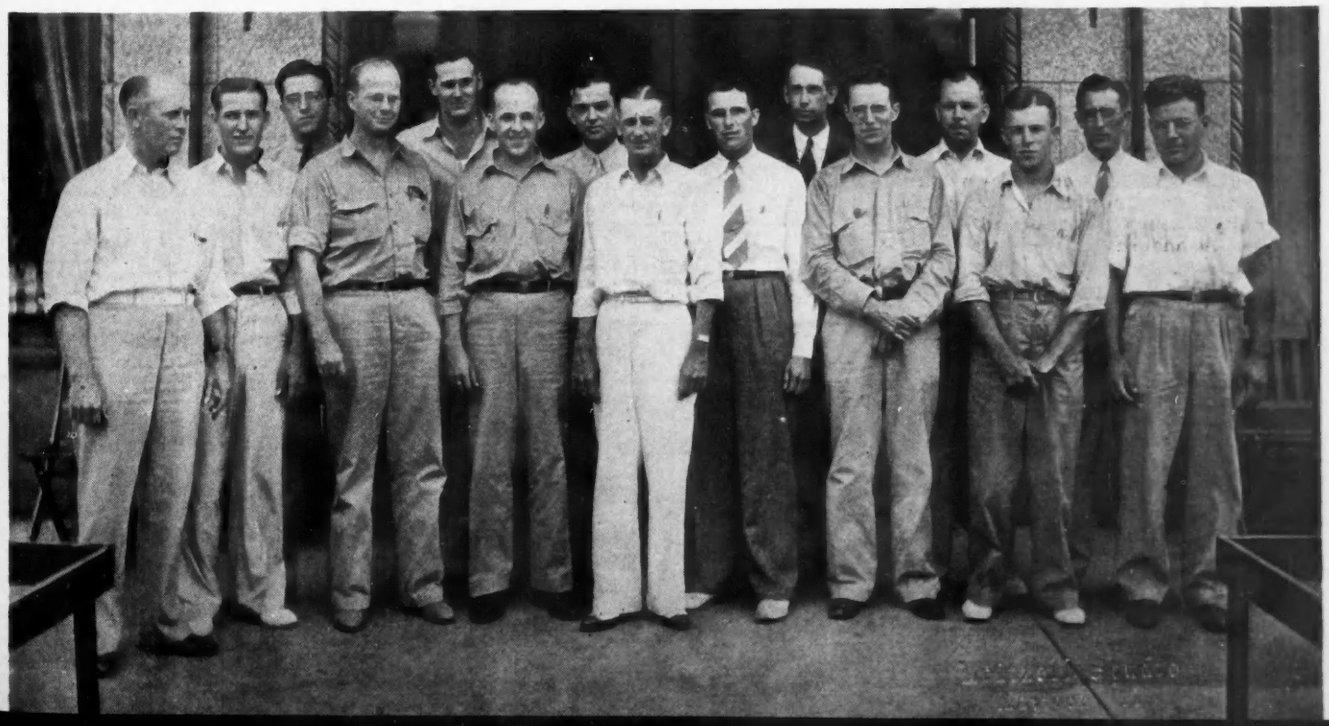


ket conditions. While the inventories are 11 percent larger than a year ago, the demand also is running about that much higher.

Congressional Record in Oil

Numerous measures of interest to the oil industry were lying dormant late last week as Congress prepared to adjourn. Some may be taken up for consideration in the next session, but of most of them nothing more will be heard.

The three most important bills, (1) extending the Connally contraband oil act, (2) continuing the interstate oil compact, and (3) providing for extension of outstanding prospecting permits, were passed.

A fourth measure, authorizing the Navy Department to consolidate its holdings in Reserve No. 1, was stymied in the House naval affairs committee, but probably will be brought out early next session.

Other bills numbering more than a score were introduced but never given consideration.

Who Owns Ocean Fields?

Moving to vest title to the California offshore oil fields in the United States, the Senate has approved a resolution, introduced by Senator Nye of North Dakota, instructing the Attorney General to bring suits for possession. The fields are worth many millions of dollars.

Since the fields lie below low-water mark, although within the 3-mile limit, Nye contends they are federal lands, and he sees in them a valuable addition to the Naval Petroleum Reserves.

Oil interests and the state of California maintain, on the other hand, that the fields are on state lands. Wells that have been drilled are on leases obtained by oil companies from the state.

The California fields that extend out into the ocean include Elwood, Huntington Beach, Playa Del Rey, Rincon, Summerland.

More Texas Taxes Planned

Like the father facing a college career for his son, the oil industry is confronted with a special tax session of the Texas Legislature in September, realizing it may be called upon at any time to raise needed money.

When he announced last week that the special session will be called, Governor Allred started a political argument with Colonel Ernest O. Thompson, member of the Texas Railroad Commission, and candidate for governor. Thompson asserted there was no need for new taxes, basing the contention on calculations showing that current income would amortize the $17,000,000 deficit within 5 years. The governor said the colonel's idea was a pipe dream and indicated that a luxury tax probably would be given serious consideration.

Market briefs

Outlook—Promising, as better crude control is likely for September.

Crude Market—Generally firm, despite somewhat excessive production.

Refined Oil Markets—Steady, with prices mostly unchanged lately.

CURRENT OPERATIONS

Weed Ended	Daily Crude Production	Daily Crude Runs to Stills
August 14, 1937	*3,718,600	3,340,000
Previous week	3,651,150	3,340,000
Year ago	3,070,400	2,925,000

CRUDE STOCKS

Date	Crude Oil (Barrels)
August 7	307,922,000
Week ago	308,250,000
Year ago	305,315,000

REFINED OIL STOCKS

Date	Gasoline (Barrels)	Gas & Fuel Oil (Barrels)
August 14	69,087,000	109,664,000
Week ago	69,216,000	108,597,000
Year ago	61,953,000	110,795,000

DRILLING

Period	Wells Completed
Past week	592
Previous week	640
Year ago	496
Year Total	
This year	18,373
Last year	14,934

*All time peak.

Field development during the week was featured by major extensions, ranging from 3½ miles in one direction to 6¼ miles in another, for Wasson field, West Texas. In addition, another area over six miles from the northwest outpost indicates existence of a separate field. Other West Texas developments included a 1½-mile southeast extension of the Ordovician zone at Sand Hills and a probable new Delaware lime field in western Ward County.

Patoka field in Illinois was extended two miles south, while Clay City field in the same state was extended 1½ miles northwest.

Monument and Eunice fields in New Mexico were linked by producers, an event expected for two years, and shallow pumping production was discovered by an independent in Eddy County.

Carter Oil Company finally has a showing of 51 gravity Wilcox oil from a wildcat in Grant County, a region which Oklahoma geologists have declared of great economic importance since 1929.

Thousands of acres were thrown open for exploratory effort because a wildcat in Pratt County, Kansas, last week showed oil and gas from Simpson formation.

Gas distillate production from Cotton Valley field in Louisiana was extended 1½ miles southwest.

South Texas developments consisted of a possible new Austin chalk field for Guadalupe County, indications that the Pettus sand in South Burnell field will be unusually prolific, discovery of a deep sand in Alta Mesa field of Brooks County, a mile east extension to North Sweden, and the discovery of two new deep sands in the Corpus Christi area.

This week in our technical section we continued with the "Equipment Care Series" by presenting an article on the care of gears on page 17. Assuming that the equipment is operated within its rated capacity, this article states, there are only two major items of maintenance to be considered in procuring satisfactory gear performance. These are good alignment and proper lubrication, both of which can cause much grief and expense if not attended to.

Oklahoma operators regard the Moore field of Cleveland County as their "problem child." The problems, practices and importance of this field form an interesting story commencing on page 21. High formation pressures, unusually large gas volumes, sand that is blown to the surface, plus such factors as a comparatively high water table, are the difficulties in this important field.

Recovery of our older fields has become increasingly important in the economic welfare of the industry, consequently interest in the procedures used for the operation has become greater. Recently, at a meeting of the Kentucky Oil & Gas Association, Harry M. Ryder answered questions put to him by those present. The questions asked and Ryder's answers are published in full beginning on page 32.

Another secondary recovery method of increased importance is that of water flooding. The outstanding example of the use of this method for recovering petroleum is the Bradford field, and in this issue, page 41, appears the first of a series of several articles discussing the basic principles under operation as practiced in this pool.

Production Allowables

Bureau of Mines recommends record production for September . . . Suggests increase of 46,400 barrels over its forecast for month of August.

AS TEXAS, producer of about 45 percent of the oil in the United States, was holding its regular monthly proration hearing at Austin (See Proration Affairs) to procure data upon which to base its September production allowable, from Washington came news that continued record-breaking demand for petroleum products for some weeks to come was visualized by the Bureau of Mines.

In its regular monthly forecast, the Bureau on August 18, placed the daily production of crude required in September at 3,509,000 barrels, or 46,000 barrels higher than the average it predicted for the month of August. This September figure is 476,900 barrels, or 16 percent, greater than the actual output in September, 1936, although but nine percent over the actual demand in that month. However, the figure lacks about 200,000 barrels daily of equaling the daily production of the country at this time, which is unusually high due to Texas exceeding the Bureau's recommended output by more than 100,000 barrels per day.

Foreign Purchasing Aiding

Contributing to the heavy demand, the report showed, are the high foreign purchases of both motor fuel and crude, a possible indirect reflection of military activities and contemplations in Europe and the Far East, regarding the future of which the bureau is doubtful.

Commenting on the current situation, the bureau pointed out that "crude oil production during the five weeks, June 26 to July 31, averaged about 3,571,000 barrels daily. During that period," it was commented, "crude oil stocks increased 571,000 barrels net, of which 192,000 barrels was in domestic grades, indicating a daily demand for domestic crude during this period of 3,565,000 barrels, a new record."

Domestic demand for motor fuel in September is estimated by the bureau at 48,700,000 barrels, or 10 percent higher than the actual demand for September of last year. Exports for the month have been estimated at 3,000,000 barrels, a 100,000 barrel increase over August, "in line with the upward trend in this factor during recent months."

Stocks Have Increased

Stocks of finished and unfinished gasoline on June 30, last, totaled 75,053,000 barrels; American Petroleum Institute figures show gasoline stocks reduced about 5,000,000 barrels during July, bringing them to approximately 70,000,000 barrels at the close of that month. The bureau estimates a withdrawal of 2,800,000 barrels during September, compared with an estimate of 5,000,000 barrels for this month, so that, should all these estimates prove essentially correct, stocks of September 30 would amount to 62,200,000 barrels, or above 4,400,000 barrels above the level of September 30, 1936.

Benzol and direct sales and losses of natural gasoline for the coming month are estimated at 1,000,000 barrels, making the estimated production of gasoline 47,900,000 barrels, or 1,597,000 barrels daily, which the bureau recommends be allocated among the various districts as follows:

East Coast, 7,000,000 barrels; Appalachian, 1,780,000 barrels; Indiana-Illinois, 8,330,000 barrels; Oklahoma, 3,150,000 barrels; Kansas-Missouri, 2,730,000 barrels; Texas inland, 3,740,000 barrels; Texas Gulf, 10,840,000 barrels; Louisiana Gulf, 1,510,000 barrels; North Louisiana-Arkansas, 910,000 barrels; Rocky Mountain, 1,140,000 barrels; California, 6,770,000 barrels.

Natural gasoline consumption at refineries in September is estimated as 7.4 percent of the total gasoline required, or 3,540,000 barrels; the yield of straight-run and cracked gasoline is estimated as 44.5 percent, which, when applied to the estimated stright-run and cracked gasoline production of 44,360,000 barrels gives refinery requirements as 99,580,000 barrels, a daily average of 3,319,000 barrels.

Foreign crude run to stills is estimated at 2,900,000 barrels, the same as for August.

Exports Are Up

"Crude oil exports have shown a strong upward trend for the past few months," the bureau commented in touching upon the foreign situation. "Whether the high rate of exports will be continued is problematical, nevertheless it was thought advisable to increase the estimate by 400,000 barrels over the August estimate, to 5,600,000 barrels."

The estimate for crude oil burned as fuel and for losses has been increased in accordance with the usual seasonal change to 3,000,000 barrels, 100,000 barrels higher than for the current month.

Bureau of Mines Estimate of Required Crude Oil Production in September, by States

(Daily averages in barrels)

STATE	September, 1937	August, 1937	Change in Month
Texas	1,413,600	1,395,200	+18,400
California	638,200	612,800	+25,400
Oklahoma	633,600	633,400	+ 200
Louisiana	247,900	253,900	— 6,000
Kansas	200,900	200,500	+ 400
New Mexico	101,400	100,800	+ 600
Pennsylvania	53,600	53,600	.....
Wyoming	55,900	52,800	+ 3,100
Michigan	40,400	39,900	+ 500
Arkansas	29,900	29,100	+ 800
Montana	18,200	17,700	+ 500
Kentucky	17,000	16,800	+ 200
New York	15,800	15,200	+ 600
Illinois	14,600	13,000	+ 1,600
West Virginia	10,300	10,700	— 400
Ohio	10,500	10,300	+ 200
Colorado	5,000	4,900	+ 100
Indiana	2,500	2,300	+ 200
	3,509,300	3,462,900	+46,400

Oil in the Courts

Ruling of court may curb Huntington ocean drilling

DRILLING in the state-owned Huntington Beach oil field tideland pool, Orange County, California, opened by legislation passed by the 1937 legislature which was believed to have become effective with the signature of Governor Frank F. Merriam on May 15, may be curbed until the 1938 general election as the result of an opinion issued last week by Attorney General U. S. Webb.

Secretary of State Frank C. Jordan was advised by the attorney general that the Olson tideland leasing and drilling bill is subject to a referendum, even though the legislature passed it by a two-thirds vote in the belief an urgency measure was being enacted. As a result, if petitions seeking a referendum and carrying 116,487 signatures are filed before August 26, the measure must be submitted to a vote of the people at the 1938 general election.

Until last week's ruling, it had been assumed that the Olson measure was and would continue to be in force as an urgency measure. Webb ruled, however, that in spite of the two-thirds urgency vote of the legislature, the measure is not properly an urgency act. He pointed out that, under the law, an urgency act cannot set up new duties for a public officer, whereas the Olson bill specifies many such duties for State Finance Director Arlin E. Stockburger in leasing tidelands for drilling, inviting bids, condemning drilling sites and the like.

Meanwhile, State Senator Culbert L. Olson, author of the measure, denied that the duties of the finance director were changed by the act and said he probably would seek a writ of mandate to compel the carrying out of the provisions of his act for drilling in the oil pool.

Formal printed petitions have been drawn up against the act, but no referendum signatures have yet been certified to the secretary of state.

Legislative Affairs

Many oil bills are pigeon-holed by adjournment of Congress, which passed three oil acts . . . Senate approves federal government ownership ocean lands.

MORE than a score of bills affecting the oil industry were gathering dust in committee pigeon-holes in Washington as Congress adjourned after nearly eight months of work, during which three oil bills were enacted.

Last week the Senate passed a bill that provides that all submerged coast lands lying between shore and the three mile limit belong to the federal government. Other actions last week by the federal Congress included a report that would provide tax relief for oil royalty concerns, if they can meet certain requirements.

In Ohio the state legislature may commence an investigation of gas rates. In Texas a special tax session of the legislature has been called for September, and the oil industry probably will be considered as a likely revenue source again.

Congressional Record

As Congress adjourned, its record for this session included the passage of measures providing for the extension of the Connally Contraband Oil Act, approval of renewal of Interstate Oil Compact, and continuing effective outstanding prospecting permits.

A bill authorizing the Navy Department to consolidate its holdings in Naval Reserve No. 1, passed by the Senate, was in the hands of the House Naval Affairs Committee, where an abortive attempt was made to secure action by the Department of Justice to recapture lands within the reserve now held by Standard Oil of California.

The only other legislation affecting the industry, outside the measures which were applicable nationally, was the bill extending the oil excise taxes.

Chronological Review

A large number of bills affecting the industry directly or indirectly were introduced during the session, and will be available for consideration next session, although it is doubtful whether any action ever will be taken with respect to most of them.

A chronological review of the session shows that the following measures were introduced:

January 5—H. R. 88, by Representative Morgan G. Sanders (Democrat) of Texas; to increase the oil excise taxes.

January 5—H. R. 1626, by Representative John J. Dempsey (Democrat) of New Mexico; for a survey of oil in storage.

January 6—S. 330, by Senator Carl A. Hatch (Democrat) of New Mexico; conveying to entryment the rights to gas, oil and oil shale in lands patented to them.

January 14—S. 790, by Senator Tom Connally (Democrat) of Texas; extending the contraband oil act; passed by the Senate March 29 and by the House June 3; approved by President Roosevelt June 14.

January 15—S. J. Res. 45, by Senator Lynn J. Frazier (Republican) of North Dakota; relating to ownership of oil and other securities by members of Congress and employes of the federal government and their relation to such corporations and firms.

January 18—H. R. 3134, by Representative Patrick J. Boland (Democrat) of Pennsylvania; to impose a tax on fuel oil.

January 25—H. R. 3603, by Representative Carl Vinson (Democrat) of Georgia; to consolidate the naval reserves.

January 27—S. 1129, by Senator David I. Walsh (Democrat) of Massachusetts; authorizing the government and the state of Utah to exchange lands.

January 27—S. 1131, by Senator Walsh; to consolidate the naval reserves; passed by the Senate April 16.

January 28—H. J. Res. 172, by Representative William Lemke (Republican) of North Dakota; same as S. J. Res. 45.

January 29—S. 1223, by Senator William H. King (Democrat) of Utah; to amend the District of Columbia gasoline tax act.

January 29—H. R. 4015, by Representative John O'Connor (Democrat) of New York; to increase the oil excise taxes.

January 29—H. R. 4016, by Representative O'Connor of New York; to amend the tariff act with respect to mineral oils.

February 1-3—S. 1345, by Senator Joseph C. O'Mahoney (Democrat) of Wyoming, and H. R. 4277, by Representative Paul R. Greever (Democrat) of Wyoming; to extend prospecting permits; passed by the House July 26, by the Senate August 6.

February 5—S. 1711, by Senator Arthur Capper (Republican) of Kansas; to repeal the oil excise taxes.

March 5—H. R. 5366, by Representative Martin Dies (Democrat) of Texas; to extend the Connally contraband oil act.

April 15—S. 2164, by Senator Gerald P. Nye (Republican) of North Dakota; asserting federal ownership to California "offshore" oil lands.

May 3—H. R. 6808, by Representative J. B. Daly (Democrat) of Pennsylvania; to repeal oil excise taxes.

May 20—H. J. Res. 375, by Representative Robert L. Doughton (Democrat) of North Carolina; to extend the nuisance taxes; passed and signed by the president.

June 17—H. R. 7551, by Representative John J. Dempsey (Democrat) of New Mexico; to collect information on crude oil in storage.

July 9—H. R. 7800, by Representative Fred Biermann (Democrat) of Iowa; to divorce marketing.

July 22—S. J. Res. 183, by Senator Elmer Thomas (Democrat) of Oklahoma; to extend the interstate oil compact; passed by the Senate July 27 and by the House July 29; signed by the president August 11.

July 26—H. J. Res. 456, by Representative Lyle H. Doren (Democrat) of Oklahoma; same as S. J. Res. 183.

July 31—S. 2879, by Senator Guy M. Gillette (Democrat) of Iowa; to divorce marketing.

August 4—H. J. Res. 478, by Representative R. P. Hill (Democrat) of Oklahoma; to investigate alleged loss of revenues by states through exemption of Indian lands and oil deposits thereunder from taxation.

California offshore lands

With the full support of President Roosevelt and high administration officials, the Senate Public Lands Committee on August 17 made a favorable report on a resolution introduced by Senator Nye of North Dakota looking toward seizure by the government of large areas of oil-bearing lands lying under water off the coast of California. Two days later it was passed by the Senate and sent to the House for concurrence.

Under the terms of the resolution, introduced by Senator Nye August 14, the attorney general would move to establish, by suit or otherwise, the title of the United States to the California "offshore" oil lands, and remove and eject persons now occupying them or removing the petroleum deposits therefrom.

Requiring the concurrence of the House of Representatives, it is not believed, as this is written, that sufficient time remained this session for final enactment of the measure. If not passed by the House, it will be placed on the program for consideration immediately after the convening of the next session.

Reason for Delay

Senator Nye's action followed an interchange of letters with the attorney general, in which the latter took the position that his department should make no move while legislation was pending in Congress, referring in this connection to a bill introduced by the senator on April 15 to declare lands under territorial waters of the continental United States to be part of the public domain, such lands as contained oil to be made part of the naval reserves.

While the extent of the California offshore oil fields has never been accurately determined, it is said their value runs into many millions of dollars. The state is in control of the lands, from which it receives a large annual revenue.

In introducing his resolution calling upon the Department of Justice for action, Senator Nye pointed out that the oil reserves now owned by the

government are in serious danger of depletion or loss from various causes while large deposits underlie various submerged lands along the coast and below low-water mark but within a distance of three miles, and that these lands should belong to the government, which has ownership of lands below the low-water mark and within the three-mile limit.

Unless action is taken promptly to secure these lands for the United States, he added, much of their oil content may be removed by private exploitation.

In its report, in which it approved the resolution as a "better approach to the problem" than through Senator Nye's original bill, the committee incorporated a letter from Acting Secretary of the Navy William D. Leahy, in which it was said the legislation was "in accord with the program of the president."

"The purpose of the proposed legislation," Admiral Leahy explained, "is to provide that all submerged land lying under the high seas off the coasts of the continental United States between the low-water mark and the three-mile limit be declared to be a part of the public domain and to withdraw such lands and all minerals located on or under them from settlement, location, sale, entry, occupation, encroachment or acquisition."

Relief from royalty taxes

Relief for oil royalty companies from the proposed heavy new taxes on personal holding companies, if they can meet certain requirements, is provided for by the Senate Finance Committee in its report on new tax legislation, submitted to the Senate August 17.

The committee recommended the insertion of new provisions, to exclude oil royalties from personal-holding-company income if they constitute 50 percent or more of the gross income of the corporation, subject to the limitation that, in order for such income to be excluded, the amount allowable for the taxable year for expenses must constitute 15 percent or more of the gross income, compensation to shareholders for personal services not to be counted as part of the 15 percent.

It was explained that this amendment will not exclude royalty income if it constitutes less than 50 percent of the gross income, and expressed the committee's belief that the 15 percent expenses requirement will furnish a "satisfactory separation between companies which may be classified as operating companies and the pure holding-company type."

The finance committee's action followed representations from officers of oil royalty companies that they would be unable to continue "in competition" with the large producing companies if subjected to the holding company taxes, it being pointed out that many of the royalty companies spend large sums in production activities.

Ohio gas rates

A statewide investigation of the natural gas industry in Ohio loomed last week when the public utilities commission consolidated a group of numerous local cases involving East Ohio Gas Company and another group involving Ohio Fuel Gas Company and other subsidiaries of Columbia Gas & Electric Corporation. The companies are seeking higher rates, in some cases, and are appealing rate ordinances of cities in other instances.

The commission has taken a rate case involving Cleveland, served by East Ohio Gas Company, and another involving Columbus, served by the Columbia group, as "key cases" for gate rate testimony. Fixing of property valuations and operating expense allowances for production and transmission systems up to the point of delivery of gas at the city limits of each municipality will be included in the gate rate investigations.

A similar plan was followed by the commission 14 years ago when it inaugurated its statewide investigation of the Ohio Bell Telephone Company.

East Ohio Gas Company, a subsidiary of Standard Oil Company of New Jersey, and three subsidiaries of the Columbia system, Ohio Fuel Gas Company, Cincinnati Gas & Electric Company and Northwestern Ohio Natural Gas Company, control practically all the natural gas distribution in Ohio. Hope Natural Gas Company of West Virginia is the main producing unit of the East Ohio Company, while United Fuel Gas Company of West Virginia furnishes production for the Columbia companies.

Rate increases are being sought by East Ohio at Canton, Youngstown, Campbell, Massillon, Struthers and Lakewood, and the company is appealing rate ordinances enacted by Cleveland, Akron, Warren and Niles. Rate increases are being sought by Columbia subsidiaries at Malta, Lorain, Logan and Parma, and the companies are appealing rate ordinances enacted by Columbus, Elyria, Delaware, Franklin and Middletown. At Toledo and Norwalk, Columbia subsidiaries have both rate increases and ordinance appeals pending.

Texas tax session

Governor James V. Allred has announced that a special session of the Texas Legislature will be called about September 20 to consider new revenue raising measures.

Announcement of this session is of particular significance to the oil industry because it may be called upon to bear most of the new tax burden.

Allred has minimized statements of other state officials, including Railroad Commissioner Ernest O. Thompson, in which they have declared that no new taxes are necessary and that current income will wipe out the $17,000,000 deficit within the next five years.

While there has been talk of an income tax and a sales tax, it seems unlikely that the members of the Legislature will approve either measure, because at least 160 of the 180 members must run for re-election next year, and for that reason will not likely approve a tax bill so directly affecting the rank and file of voters.

Conversely, it is for that reason that they are so willing to make large appropriations with apparent disregard for the income the state has. These appropriations must of course be met from some tax, and since big business, and especially the oil business, is able to foot the bill, it is probable that the Legislature will present it to them.

Proration Matters

Texas holds monthly proration meeting . . . Sharp drop reported in East Texas pressure . . . Demand for Texas oil high . . . Kansas issues gas rules.

THE Texas statewide hearing was by far the most outstanding proration action of the week. Introduced at the meeting was information gathered by the first survey of Texas refineries, which showed a remarkable increase in crude runs to stills within the state over the past year and a decline in storage during the last two years. However, these data were not as important as was testimony that the bottom-hole pressure in the East Texas field again is declining rapidly, and that nominations for purchases failed to demonstrate again slackening of demand, despite the high production of Texas in August.

Kansas proration officials last week were concerned with the curtailment of gas wastage in Western Kansas fields, and an order was issued limiting the gas-oil ratio in the Otis field. Oklahoma was preparing for its statewide proration hearing, and another where changes in Fitts allocation methods will be discussed.

Texas' hearing

A decline of 13.71 pounds in the bottom-hole pressure of the East Texas field, which railroad commission engineers declared was excessive, was the outstanding feature of the Texas statewide hearing held in Austin last week.

Since June 21, 1936, the railroad commission has had in effect in this field an allowable of 2.32 percent of the hourly potential of all the wells. At the time this figure was set, the total withdrawals from the field were approximately 420,000 barrels daily.

Since that time the allowable has amounted to 473,465 barrels per day and the field is producing 60,000 barrels of water. As V. E. Cottingham, production director for the commission testified, it is the total withdrawal of fluid from the reservoir that causes the pressure decline. For that reason the railroad commission must consider reduc-

ing the fluid withdrawal from 523,000 barrels per day to 450,000 barrels per day. The figure which Cottingham estimated was the maximum at which the field could produce without an excessive pressure decline.

From July 12 to August 12, the field produced an average of 470,936 barrels daily with an average decline in pressure of 0.939 pounds per million barrels of allowable. A test of 34 key wells showed that the average pressure for the field on August 12 was 1141.35 pounds.

Under the provisions of the marginal well law the railroad commission may not prorate any East Texas pumping well below 20 barrels per day. The commission believes that to reduce the allowable on flowing wells below that assigned to pumping wells in the same field would result in discrimination. For that reason it is unlikely that the allowable for East Texas wells will ever be cut below 20 barrels. Should this policy be instituted now, the total field allowable would be 465,980 barrels daily, prorated among 23,299 wells. This method, of course, does not affect the 60,000 barrels of water being produced.

Texas Demand High

Testimony developed at the hearing failed to include any recommendation from operators that Texas allowables be reduced during the month of September. Operators from several fields asked for increases and the demand seemed firm.

The United States Bureau of Mines estimated that the consumer demand for Texas crude during the month of September would be 1,413,600 barrels daily, an increase of 18,400 barrels above the August demand. Meanwhile, the railroad commission's allowable had risen from 1,495,491 barrels on August 1 to 1,551,734 barrels on August 18. A part of this increase was caused by allowables assigned to 614 new wells completed during this interval.

The commission, however, recognized the fact that Texas produces about two percent less than the total allowable assigned. Thus the commission estimated that on August 18 the total production was about 1,522,400 barrels, which was 108,800 barrels in excess of September demand as calculated by the Bureau of Mines.

Nominations filed by purchasers of Texas crude showed that the demand would be 1,657,776 barrels during the month of September, a gain of 463 barrels over August. A check of these nominations for the succeeding five months indicates a constant increase in consumer demand throughout the month of February.

The increases in the allowables by districts during the first 18 days of the month are indicated in the accompanying table.

The commission's survey of refinery demand showed that 130 plants are now processing 52 percent more oil than they were in January, 1935. At that time, 650,000 barrels of crude was run to stills daily, and this amount has increased to 988,000 barrels for the month of June, 1937.

In June of this year, total refinery storage was 12,550,890 barrels and pipe line and terminal storage totalled 69,618,661 barrels, a total of 82,169,551 barrels of storage for the state as a whole. In spite of high production during the past two years, this total storage had decreased 5,063,954 barrels during the interim. The supply on hand was sufficient to operate plants for about 83 days.

Reports were received from 101 plants which were in operation. The total capacity of these plants is 1,051,030 barrels and they are operating at about 73 percent of their capacity. These plants had available on July 31, 26,839,939 barrels of crude and had available enough storage for 16,785,089 barrels more.

The reports to the commission indicated that the total refinery stocks for efficient operation must be 20,881,320 barrels, which is enough to supply them for 19 days. During the month of July, the plants processed 27,746,532 barrels of crude.

This information had been sought by the commission to determine whether there was on hand at refineries using Texas crude enough oil to enable them to operate efficiently.

The Texas Railroad Commission last week postponed indefinitely its hearing on spacing for the Keystone field. A hearing on the El Tanque field, which was set for hearing August 19, was recessed at the request of the Sun Oil Company, whose representatives asserted that they had failed so far to complete a well.

The commission has recessed until August 27 its hearing on gas proration in the Panhandle. The meeting will be held at Amarillo and a gas proration order for September will be issued based upon the evidence adduced at this hearing.

Texas Allowable Comparison

As of August 19, 1937

DISTRICT	Allowable July 1	Allowable August 1	Allowable August 18	New Wells Aug. 1 to 18
Southwest Texas	27,456	29,105	30,079	26
Southwest Texas	53,620	62,494	65,317	20
Gulf Coast	193,291	222,449	230,026	49
Southwest Texas	140,897	155,227	177,499	69
East Central Texas	43,328	44,462	44,893	8
East Texas	75,321	80,380	85,125	53
East Texas Field	466,000	470,734	473,465	100
West Central Texas	46,010	48,899	50,578	52
West Central Texas	21,838	22,403	23,043	29
West Texas	177,040	213,498	222,410	117
North Texas	61,675	64,440	66,363	44
Panhandle	79,000	81,400	82,936	47
	1,385,476	1,495,491	1,551,734	614

Kansas Gas Waste

Curtailment of gas volumes held to be excessively produced from wells in Otis field, eastern Rush County, Kansas, is the subject of an order issued by the State Corporation Commission. A production ratio of 5000 cubic feet of gas to each barrel of oil has been ordered as the maximum allowable. Well variations from this ratio are only permissible where produced gas is paid for, and gas production is in proportion to open flow or potentials as determined for each and every well in the field. Market demand for Otis gas and gas allowable is to be the subject of a hearing scheduled at Wichita for August 24.

As originally developed Otis field was considered a semi-important natural gas reserve. Further activity greatly increased the productive area, with minor shows of distillate being encountered. Later drilling established flank production of oil from the pool's chief producing strata, Reagan sand, at between 3500 and 3600 feet. Sixteen wells are now producing oil along the southern and western flanks of the dome, these wells having a total potential of about 8720 barrels per day. Entire gas reserve of the pool has been estimated at 100 billion cubic feet, a conservative figure in considering the areal extent of the dome is unproven.

With added wells productive of oil, the importance of Otis has been increasingly evident. Various efforts to extend the oil area have met with failure, although the general southern edge of present gas productive zones are considered prospective crude acreage. Drilling is generally on a 160-acre basis, with some wells more closely spaced. Tests are under way in sectors of the field at this time.

Engineers are engaged in a study of the gas wastage charges reported from Burrton field of eastern Reno County, Kansas. Attorney General C. V. Beck, assisted by local authorities, recently filed his findings with the commission, and it is reported the investigation is being continued under the direction of commission technicians. A report is expected from this latter group about September 23.

Oklahoma matters

A hearing before the Corporation Commission will be held August 26 at 2:00 p. m. to discuss a proposed cutback in daily state production of approximately 50,000 barrels. Operators and purchasers have been requested to have a representative present.

A proposal to prorate Fitts field wells on a per lease basis, regardless of what strata might be producing, is the subject to be discussed at a meeting called by Wm. J. Armstrong, Oklahoma conservation officer on August 27 at Oklahoma City. It has been pointed out that the suggested manner of proration would not involve complications in regard to royalty payments, as these would be to leaseholders in all cases, irrespective of what formation might be productive. Also, by this manner of control, surface equipment needs would be reduced to effect a considerable saving in the cost of tankage, piping and flow units. If the manner is approved by interested parties, it will be the first time this manner of proration has been set in force in Oklahoma.

Earnings Up 48 Percent This Year

Oil company profits for 1937 are likely to be about same as for 1929, when pre-depression prosperity of the industry reached its peak... Favorable results of first six months being extended

By L. J. LOGAN,
Associate Editor

IT now appears highly probable that oil companies in the aggregate will show for 1937 about the same profit as for 1929, when the industry reached the peak of the prosperity of the 1920's.

This probability is indicated by: (1) reports on earnings in the first half of this year, (2) the continued favorable results in the third quarter, and (3) the prospect that there will not occur in the final quarter any serious interruption of the prevailing satisfactory conditions.

Approaching Previous Peak

Nearly 8 months of this year already have elapsed, and so far oil company profits of 1937 have been running around 50 percent higher than those of 1936.

If this percentage of increase over 1936 is maintained in the remaining four months of the year, the oil company profits for 1937 will be about the same as those in 1929.

Numerous Reports Available

Reports are now available on first six months operations of sufficient oil companies to afford a good idea how the industry's earnings this year compare with those last year. Such a view was not possible earlier in the year, as many of the larger companies do not issue reports on the first quarter, while some of those concerns do issue mid-year reports in addition to their annual reports.

Profits Up 48 Percent

The accompanying table shows that 38 oil companies earned in the first six months of this year 48 percent more profit than in the similar period last year.

In this year's first half, profits of the 38 companies aggregated $199,376,474, compared with $134,984,502 in the initial six months of 1936.

This improvement in earnings is fairly representative of that for the industry as a whole, as it reflects the operations of numerous large, integrated companies engaged in business in all branches of the industry, as well as the results for smaller companies.

Outlook Good for Rest of Year

The improvement of about 50 percent over earnings last year very likely will be extended, moreover, through the third quarter of 1937. The quarter already is over half gone, and so far there has not been any interruption of the favorable oil company earnings as volumes of business have continued at all-time record levels, while prices have been well maintained.

It seems fairly well assured, consequently, that for at least the first three quarters of 1937 the 50 percent gain over last year's earnings will be maintained.

The outlook is less clear, of course, for the final quarter of 1937. But at present there are no indications that the present conditions and trends will be materially changed.

It is strongly indicated, therefore, that from a profit standpoint 1937 will be for oil companies another 1929.

Much Business at Good Prices

The exceptionally profitable operations of oil companies this year reflect primarily the large volumes of business they have been doing, with consumption of oils running at the highest levels of all time. The total demand for petroleum this year has been about 11 percent larger than in the similar period last year. The domestic demand for gasoline, chief money product of the industry, has been running more than 10 percent above last year's levels.

The oil companies were showing fair profits on the volumes of business that were available in 1936, and the added 10 percent this year, usually handled without any material increase in operating expenses, has meant much in expanding net profits.

Furthermore, the prices received this year for crude oil and refined products have been somewhat better than last year. Crude prices were advanced early this year about 10 percent, and product prices have shown about a proportionate increase.

Meanwhile, it is true, the oil companies have been obliged to pay out more for materials and labor this year than last year.

But those increased costs have been more than compensated by the larger volumes of business and the moderately higher prices received for oils.

Most Oils in Wider Use

The increased demand for oils this year embraces higher consumption of most of the products of the industry. Record-breaking demand for gasoline reflects the fact that more automobiles are registered now than ever before and the further fact that the public has been more travel-minded in the current vacation season than for any year since the boom times of the 1920's.

Other products that have been in wider use this year than last year include: kerosene, fuel oils, lubricants, asphalt, and road oil. Fuel oil demand has shown an especially large gain, reflecting the continued increase of domestic oil burner installations, as well as further expansion of industrial activity.

General Business Good

Largely responsible for the great demand for oils this year and thus for the prosperity of the industry has been the favorable condition of

industry and business in general. The welfare of the petroleum industry is intertwined closely with general conditions, and the favorable general conditions this year obviously have promoted good results for the oil companies.

Similarly, results in the oil industry the rest of the year will depend to a considerable extent on the trend of general conditions.

Regarding the general business outlook for the remainder of the year, there has been considerable anxiety in recent months, many having expected at least a minor recession of trade.

More recently, however, there has been a perceptible restoration of confidence, and a growing opinion that business in the fall and early winter will compare favorably with that earlier this year. Giving particular encouragement is the prospect that agricultural income this year will be the greatest since 1929, while recent trends in power consumption and steel industry activity also have been cheerful.

Under the circumstances, it appears very likely that the oil industry will continue to experience good business until the end of this year. For oil consumption ordinarily is slow to show the effects of recession of general business, and since no substantial slowing down of general business is definitely in sight, a letdown in the oil industry appears even more remote.

Future Earnings Conjectural

Beyond the end of this year, few have the temerity to venture predictions on oil company earnings. The oil business still is classed generally as hazardous, since prices and profits depend largely on how closely the output of wells and refineries is balanced with existing demand, and since such balancing must be achieved to a considerable extent through the artificial and imperfect device of proration.

At present the restraints on supply are fairly effective, holding output in balance with demand. But there is no assurance that the control will continue successful for any extended period. Substantial overproduction conceivably might develop almost overnight in California, for instance, if several large fields should be discovered there, for the state has no laws authorizing state proration as do other leading producing states. The voluntary proration currently employed in California is only partially successful, as shown by the difficulty in holding down production in the new and prolific Wilmington field.

The future trends of oil company earnings certainly will be affected, moreover, by the general economic developments, as well as by the conditions within the industry.

Net Profits of 38 Oil Companies This Year, Compared With Last Year

After all deductions, including interest, depreciation, depletion, amortization, federal taxes, minority interest, etc.

COMPANY	QUARTER ENDED JUNE 30			FIRST SIX MONTHS		
	1936	1937	Percent Change	1936	1937	Percent Change
First Group—						
Amerada Corp.	$456,300	$552,991	+ 21	$930,296	[E]$1,070,107	+ 15
Atlantic Refining Co.	1,154,391	1,447,000	+ 25	3,137,391	3,440,000	+ 10
The Barber Co., Inc. (formerly General Asphalt Co.)	160,038	[A]244,078	+ 53	71,567	[B]402,794	+466
Barnsdall Oil Co.	738,851	665,175	— 10	1,209,894	1,256,330	+ 4
Continental Oil Co.	[C]2,241,746	4,193,336	+ 87	[C]4,356,267	7,884,529	+ 81
Houston Oil Co.	123,868	456,046	+272	258,793	925,413	+259
Lion Oil Refining Co.	[D]116,188	[D]356,012	+207	[D]224,144	[D]531,264	+104
Louisiana Land & Exploration Co.	499,500	468,000	— 7	910,700	[E]1,008,600	+ 11
Mid-Continent Petroleum Corp.	1,471,609	1,860,735	+ 26	2,414,268	3,093,761	+ 28
Pacific Western Oil Corp.	319,615	[A]733,921	+130	643,121	1,002,298	+ 56
Panhandle Producing & Refining Co.	[F]50,351	[F]100,333	+100	[F]80,781	[F]136,676	+ 70
Phillips Petroleum Co.	4,180,143	7,063,443	+ 69	7,336,302	12,679,080	+ 73
Plymouth Oil Co.	456,993	722,677	+ 58	818,155	1,362,996	+ 67
Quaker State Oil Refining Corp.	388,307	491,813	+ 27	552,059	879,550	+ 59
Seaboard Oil Co. (Delaware)	614,082	638,853	+ 4	1,226,208	1,230,218	+ ⅓
Shell Union Oil Co.	[G]7,619,839	4,806,448	— 37	[G]9,301,823	8,480,927	— 9
Skelly Oil Co.	1,406,821	1,901,504	+ 35	2,203,836	3,435,918	+ 56
Standard Oil Co. of California	6,026,588	9,890,701	+ 64	8,979,546	17,780,191	+ 98
Superior Oil Corp.	52,882	94,524	+ 81	116,320	[E]136,691	+ 17
The Texas Corp.	[H]10,157,103	[H]16,200,000	+ 59	[H]16,000,000	[H]27,000,000	+ 68
Texas Gulf Producing Co.	204,563	[A]237,665	+ 11	414,674	458,107	+ 11
Texas Pacific Coal & Oil Co.	[F]159,783	[F]235,006	+ 48	[F]298,283	[F]455,506	+ 53
Tide Water Associated Oil Co.	2,571,661	4,368,398	+ 70	5,279,363	7,696,701	+ 46
Union Oil Co. of California	1,600,000	3,000,000	+ 88	2,000,000	5,200,000	+160
H. F. Wilcox Oil & Gas Co.	37,504	[A]6,995	— 84	82,264	[F]61,684	— 63
Total 25 Companies	$42,808,726	$60,735,654	+ 42	$68,845,984	$107,609,341	+ 56
Second Group—						
Arkansas Natural Gas Co.			....	$2,894,284	$2,310,417	— 20
Central Texas Oil Co.			....	[D]36,332	[D]58,000	+ 61
Cities Service Co.			....	4,219,646	4,398,737	+ 5
Consolidated Oil Corp.			....	7,029,374	9,434,917	+ 34
Derby Oil & Refining Corp.			....	131,245	344,208	+163
Margay Oil Corp.			....	[H]71,900	[H]219,600	+196
Ohio Oil Co.			....	4,476,564	6,722,357	+ 50
Republic Oil Refining Co.			....	35,098	147,511	+320
Socony-Vacuum Oil Co., Inc.			....	[H]20,000,000	[H]32,000,000	+ 60
South Penn Oil Co.			....	1,489,555	3,278,744	+120
Standard Oil Co (Indiana)			....	22,015,537	[B]27,904,211	+ 27
Sun Oil Co.			....	3,474,811	4,376,371	+ 26
Sunray Oil Corp.			....	261,172	[H]572,060	+119
Total 13 Companies			....	$66,138,518	$91,767,133	+ 39
Grand Total 38 Companies			....	$134,984,502	$199,376,474	+ 48

[A] Based on a comparison of company's reports for first quarter of fiscal year and the six months period.
[B] Exclusive of Federal Surtax on undistributed profits.
[C] Including $617,506 profit from sale of certain properties.
[D] Before Federal taxes.
[E] Compiled from company's quarterly reports.
[F] No provision has been made for Federal income, excess profits on undistributed profits tax.
[G] Including $2,909,807 or 22 cents a share profit from sale of investment in affiliated company.
[H] Estimate.

Second Quarter Profits Up

In addition to the figures on profits of the 38 oil companies for the first six months of this year and last year, the accompanying table also shows the results for 26 of those companies for the second quarter of 1937 and 1936. Those 26 companies in the three months ended June 30 this year earned $60,735,654 or 42 percent more than the $42,808,726 gleaned in the similar period last year; while for the first six months of this year, the 26 companies showed a 56 percent increase in earnings, or to $107,609,341 this year from $68,845,984 last year.

These figures indicate that for the 26 companies, the gain in earnings over last year was somewhat smaller for the second quarter than for the first quarter.

Similarly, it appears likely that the industry as a whole experienced a somewhat smaller gain in earnings over last year for the second quarter than for the first quarter.

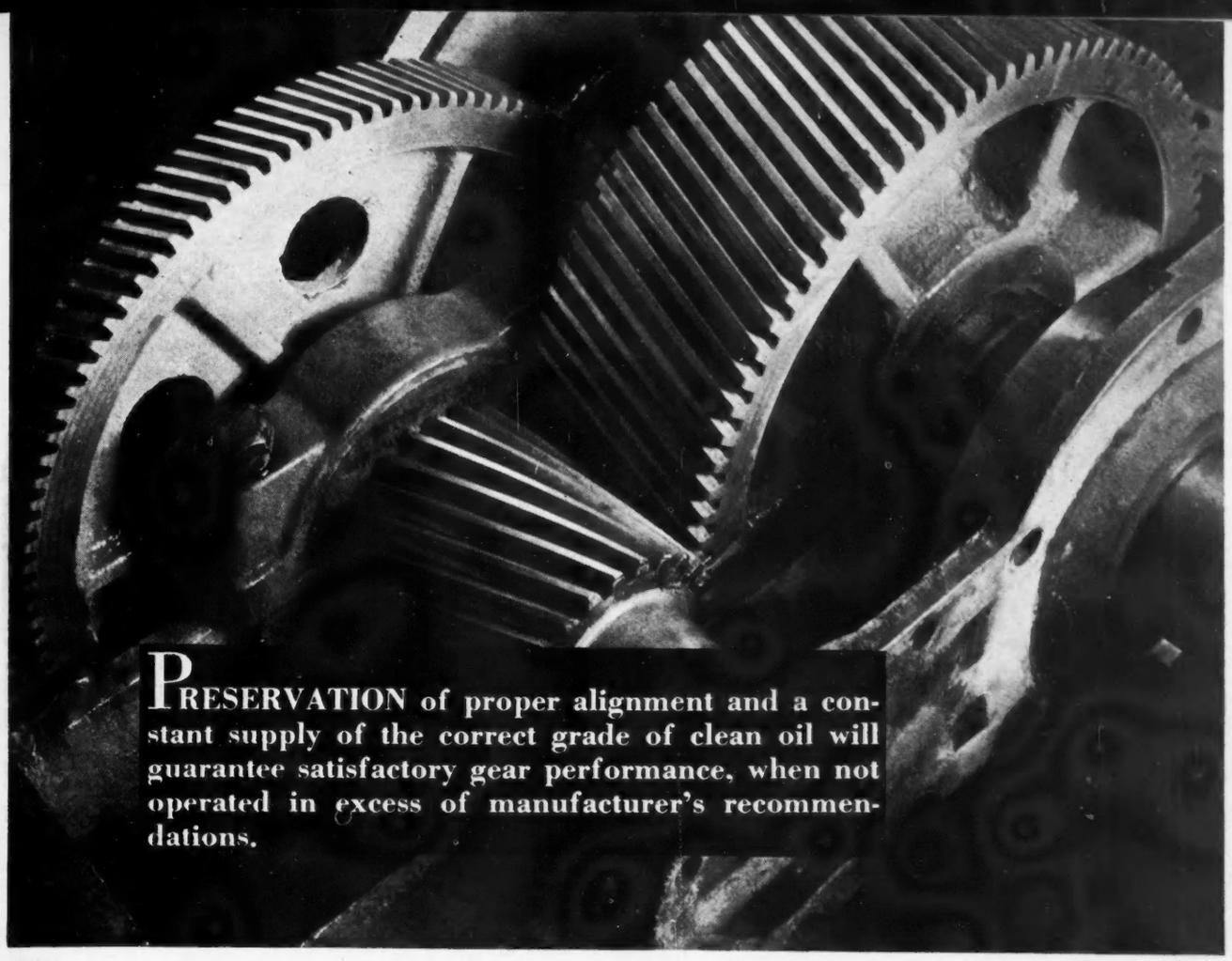
That circumstance is at least partially explained by the fact that profits of companies on the Pacific Coast were temporarily depressed in the first quarter of last year by gasoline price wars.

All Show Profit

Every one of the 38 companies in the accompanying table showed some profit for the first six months both this year and last year.

All but a few showed gains in earnings for this year's first half, and one of those, Shell Union Oil

[*See Earnings, Page 50*]



PRESERVATION of proper alignment and a constant supply of the correct grade of clean oil will guarantee satisfactory gear performance, when not operated in excess of manufacturer's recommendations.

Maintenance of Oil Field Gears

SIMPLE BUT IMPORTANT

By S. L. CRAWSHAW*

Thirteenth Article of a Series

PRESENT day industry demands continuous operation in most applications without expensive delays and shut-downs for correcting troubles. Apparatus can be properly designed and built to meet these rigid specifications where complete information is available on the service requirements. When this is accomplished, as it is today, the life of equipment is largely a function of maintenance; provided, of course, that the apparatus is not subjected to loads in excess of those permitted by the manufacturer's rating data. Such is the case with the modern gear.

Types of Gears

The various types of gearing available have enabled oil field equipment builders considerable latitude in design. Table 1 gives some idea as to the field of application for which the various types have been employed.

Since there are some fundamental differences in the gear designs, it may not be amiss to briefly point out the fact that there are three classes of gearing into which the many styles can be grouped by virtue of their supporting shaft arrangements:

Class I—Parallel Shaft Types—Gears operating in this class may be of three familiar types: (1) spur gears which have their teeth parallel to the axes; (2) helical gears which have their teeth cut at an angle with the axis of rotation; (3) herringbone gears which are essentially double helical gears.

Class II—Intersecting Shafts—For applications of this class where

* Gearing Engineer, Westinghouse Electric & Manufacturing Company.

TABLE 1
Types of Gearing and Their Oil Field Application

Types of Gearing	Pumping Units	Geared Powers	Drilling Transmission	Rotary Table	Mud Pumps	Pipe Line Pump Drives	Hoists
Spur	X	X	X	....	....	....	X
Helical	X	X	X	....	X	X	X
Herringbone	X	....	X	....	X	X	X
Worm	X	X	....	....	....	....	....
Straight bevel	....	X	X	X	....	....	....
Spiral bevel	....	X	X	X	....	....	....
Hypoid	....	....	X	....	....	....	....

shafts are at an angle but in the same plane, we find two types of bevel gearing in use. The most common type is the straight tooth bevel, although the spiral bevel is becoming increasingly more popular and necessary with increased loads and speeds.

Class III—Non-Parallel, Non-Intersecting Shafts—The most common type of gear for this class of duty is the worm gear. There has been a growing demand for the hypoid gear for this type of shaft arrangement.

Two Major Care Points

Assuming that the equipment is operated within its rated capacity, there are only two major items of maintenance to be considered in procuring satisfactory gear performance, namely, good alignment and proper lubrication. While these two factors are listed separately, they are dependent on each other for their own preservation.

Misalignment Causes

Misalignment causes concentrated loads which break down oil films, and lack of proper lubrication causes excessive wear (and sometimes complete destruction of gears and bearings) which ultimately introduces misalignment.

The proper contacting of gear teeth is a function of the preservation of the alignment of their respective shafts. There are many causes for the errors developing and the following list is offered for consideration as their correctness must be assured:

(1) Properly cut teeth.
(2) Concentricity of teeth with shaft bearing seats.
(3) Accurate alignment of bearing housings.
(4) Adequate shafts to prevent excessive deflections.
(5) Adequate foundation for machine.
(6) Level operating conditions.
(7) Proper alignment with connected apparatus.

Items 1 to 4, inclusive, are largely functions of design and may be rightfully ignored by field maintenance crews and after the equipment has been properly installed to meet the requirements of Items 5, 6 and 7 it may be felt that they can be eliminated. There are, however, constant changes going on in operation; particularly, in the field of production equipment where reversing stresses are imposed on equipment where the following conditions tend to develop misalignment in the gears:

(a) Settling of foundations.
(b) Wear in bearings.
(c) Looseness developing in bolts.

The settling of foundations may account for several indirect causes of gear wear, such as, concentrating weight of shaft assemblies on the low side of the case, and thereby permitting the upper bearing clearances to throw cross bearing into the gear teeth. Furthermore, the alignment with the connected apparatus may be disturbed and thereby cause an external bending or thrust component to be introduced into the gear structure and develop concentration of load. It is, therefore, important to check the foundation and alignment after a short period of service in order to catch any developed error before trouble is experienced.

All bearings wear in service, the amount of wear varies with the type of design and the safety factor originally built into the machine. Various designs of equipment can stand different amounts of bearing wear before the operation is affected. It is good insurance to maintain bearing clearances to a minimum due to their low cost as compared with some of the items they support. Shims are usually provided at possible points of wear and advantage of this feature should be taken by the operator in his maintenance program.

No matter how tightly the manufacturer adjusts the bolts in his equipment, subsequent field operation, particularly under vibratory or reversing load conditions, will tend to loosen them. These remarks apply equally well to bearing cap and flange bolts as well as foundation bolts. It should be a definite maintenance procedure to check this feature after the equipment has been operating a short time and periodically thereafter in order to prevent the development of serious troubles.

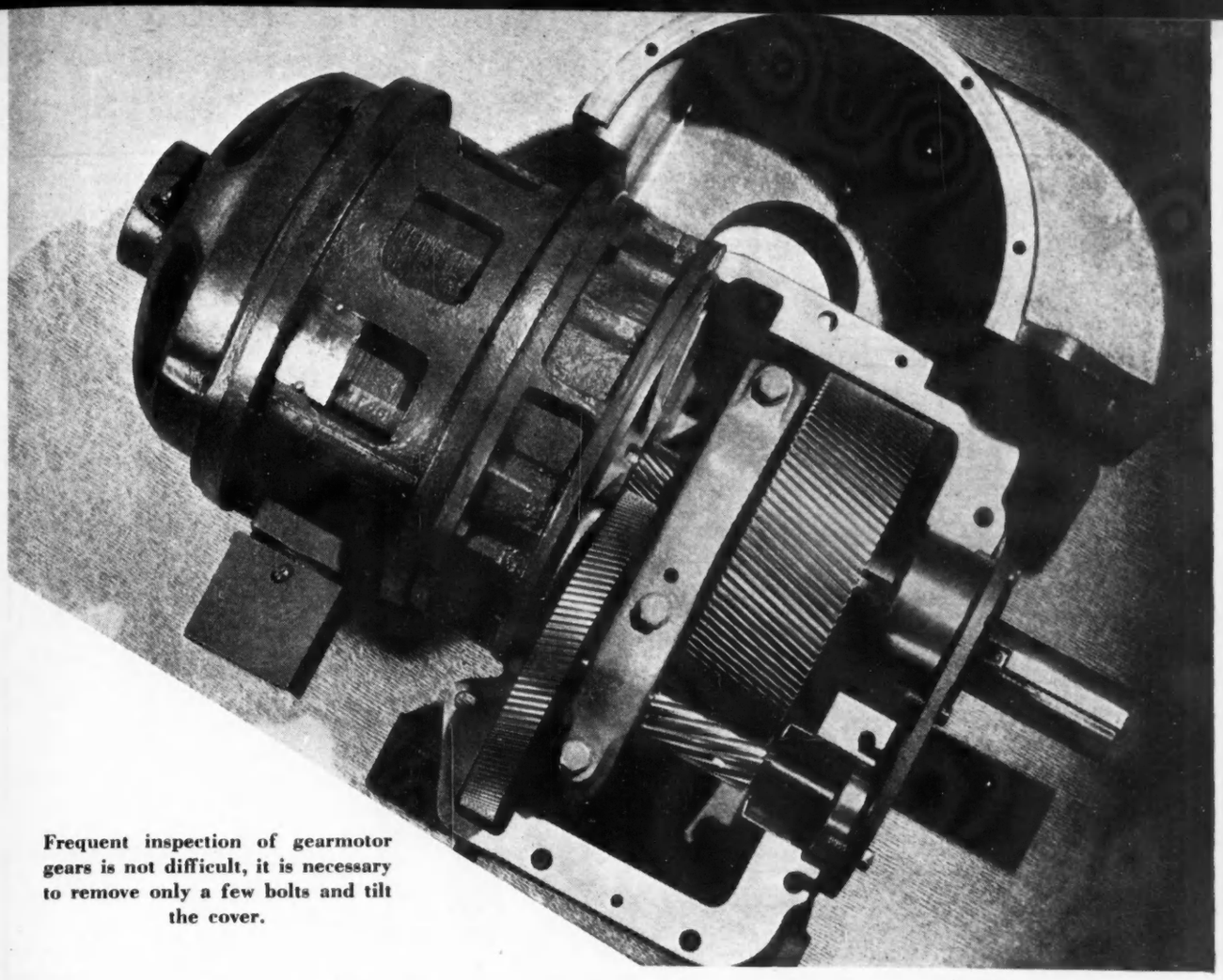
Lubrication Important

The second phase of maintenance, lubrication, is by far the most important in gearing just as it is in any type of moving mechanism, no matter how large or small. The average gear has the appearance of ruggedness and great strength and, frequently, the necessity of properly lubricating them is under-estimated. For each type of gear and each application, there are many factors contributing to the selection of the proper lubricant. This article is not intended to supplant the instructions of the equipment manufacturer or the advice of a specialized engineer, however, an attempt will be made to point out the reason for increased vigilance on the part of the operators on proper lubrication.

From the standpoint of gearing applications in the oil industry, the final selection of the proper lubricant may be recognized as a compromise of the following necessary considerations:

(1) Type of gear involved.
(2) Speed and load.
(3) Method of lubrication.
(4) Parts of apparatus serviced by lubricant.
(5) Protection against foreign matter.
(6) Range of operating temperature.

The areas of contact on gear teeth are relatively small and the unit pressures produced in transmitting loads are relatively large. It is, therefore, essential to provide a film of lubricant of sufficient thickness and strength to withstand the localized pressure during the period of contact. Just as there are three general classifications of gearing from a shaft arrangement viewpoint, there are three types of gear contacts for which the type of lubricant must be selected. The first class embodies gears of the spur, helical, herringbone and straight tooth bevel types in which the contacting surfaces may be likened to cylinders or cones in which the action is, theoretically, pure rolling. The second class is that found in worm drives wherein the action of the mating teeth can be compared to that of a bolt and nut wherein the bolt represents the worm shaft and the nut the worm wheel. In this class, the action is practically all sliding and a more serious lubrication problem develops. In the third class, we find gears of the spiral bevel and hypoid types wherein a combination of the problems of the first two



Frequent inspection of gearmotor gears is not difficult, it is necessary to remove only a few bolts and tilt the cover.

classes are found. They reach their critical problem in the hypoid set due to the high rate of sliding and the combination of metals used.

The peripheral speed of the gears governs the period of tooth contact (all other conditions being equal) and, therefore, determines the time during which the oil film must withstand the pressures. Where speeds are high, the time is very short and the lubricant can be of comparatively light body, whereas at slow speeds the longer time of contact requires a heavier bodied oil of tenacious character. There is also the effect of centrifugal force to be reckoned with in lubricating high speed gears.

Methods of Applying Oil

With the varied applications of gearing to meet the demands of each type of oil field equipment, it is to be expected that many methods of applying the lubricant to the gear train will be encountered. Each method affects the selection of lubricant differently and the following notes are offered for comparing the requirements:

Circulating Systems are employed in high pitch line velocity gearing, such as turbine drives, and the gear supply of oil is piped into the mesh under pressure. After servicing the loaded zone, it is passed through a settling tank before being recirculated. This is the most desirable system in that it insures fresh oil with lower temperatures.

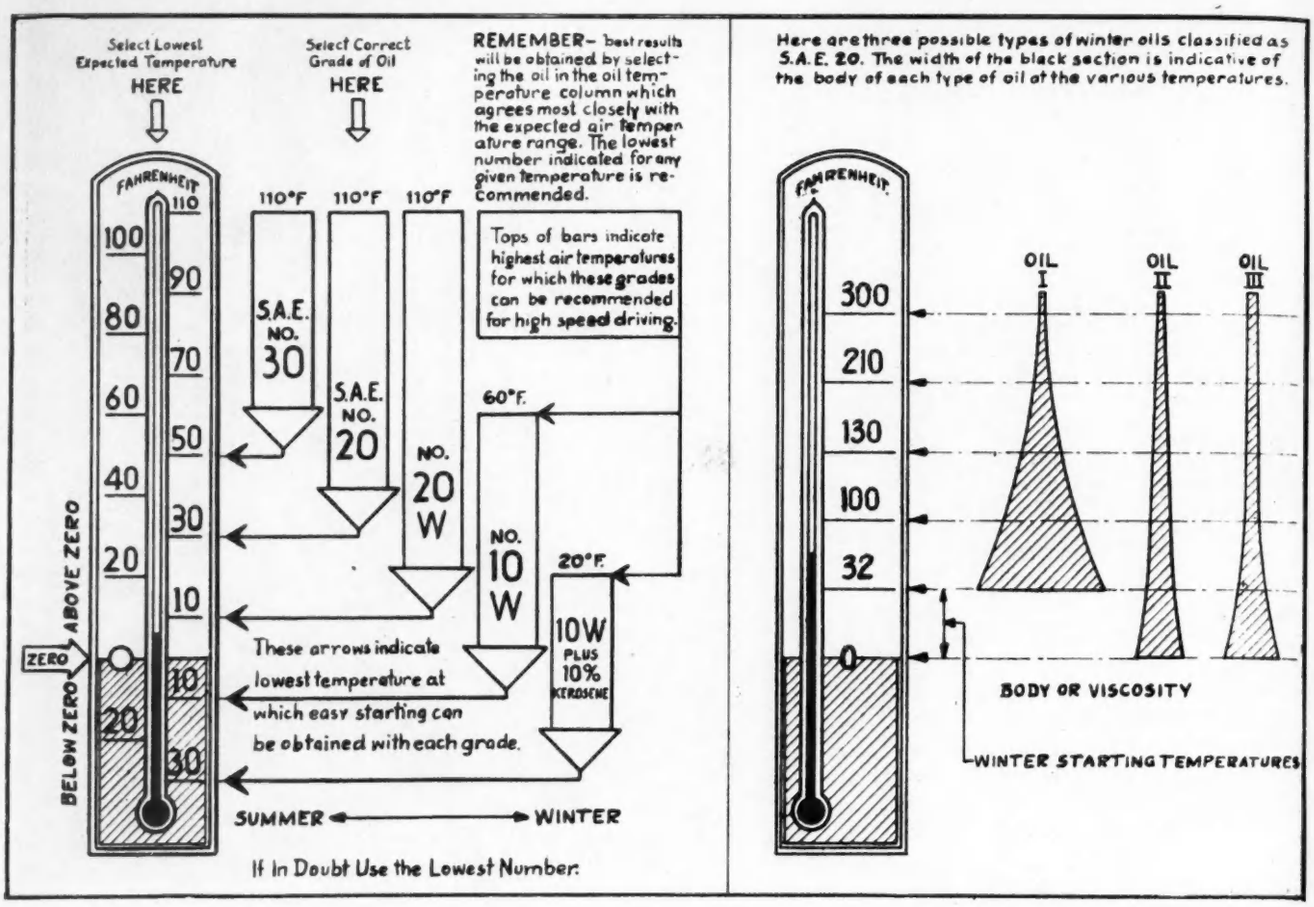
Splash Systems are the most common form of gear lubrication in which the gears pick up the oil from the gear case and it is carried or thrown to all parts requiring lubrication. Here the oil must be light enough to be circulated, but not so light that it will drain from the gear before the distributing point is reached. In connection with splash systems, it is of vital importance to maintain the proper oil level. These systems depend on one of the gears dipping in the oil a definite amount. Too little oil prevents circulation and too much oil develops churning and its accompanied evil, increased heating and loss of efficiency. In checking the oil level, it is necessary to perform this operation when the gears are not rotating since there is a quantity of oil in suspension in the troughs and bearing housings.

Slush Pan Lubrication—Open or semi-enclosed gears are sometimes lubricated by providing a trough or slush pan below the gears in which one of them dips. Due to the exposure of the lubricant to contamination, it is necessary to replace the lubricant periodically. For this service, a heavy tacky, adhesive petroleum product is required which is highly adhesive and provides a film of great tenacity.

Hand Lubrication.—Slow moving large gears carrying heavy loads are sometimes in such a position as to prevent the use of a gear case or even a slush pan. In such cases, an extremely adhesive and tacky petroleum product is applied to the gearing in a heated condition. Since the gears are openly exposed to accumulations of dirt, it is essential to thoroughly clean it before applying the lubricant.

In many pieces of equipment, particularly where the splash system is used, the gear is used to circulate oil to other parts of the machine, such as bearings. In such designs, the lubricant must adequately service each part.

As indicated above, under methods of applying the lubricant, consideration must be given to the possibilities of contamination. Foreign materials are always present as a result of normal operation. Dust drawn in through openings at bearing housings or breathers and minute particles of metal from the gears and bearings combine with oxygen to form metallic oxides. If there is an excess of oxidized oil present, a sticky oil sludge will be developed which will clog up oil passageways and prevent proper lubrication. It is customary


Select Lowest Expected Temperature HERE
Select Correct Grade of Oil HERE
REMEMBER– best results will be obtained by selecting the oil in the oil temperature column which agrees most closely with the expected air temperature range. The lowest number indicated for any given temperature is recommended.
Tops of bars indicate highest air temperatures for which these grades can be recommended for high speed driving.
FAHRENHEIT
ABOVE ZERO
BELOW ZERO
ZERO
110°F
S.A.E. NO. 30
S.A.E. NO. 20
NO. 20 W
NO. 10 W
60°F.
20°F.
10W PLUS 10% KEROSENE
These arrows indicate lowest temperature at which easy starting can be obtained with each grade.
SUMMER
WINTER
If In Doubt Use the Lowest Number.
Here are three possible types of winter oils classified as S.A.E. 20. The width of the black section is indicative of the body of each type of oil at the various temperatures.
OIL I
OIL II
OIL III
BODY OR VISCOSITY
WINTER STARTING TEMPERATURES

practice in most machines to provide a combination breather and air filter which assists in reducing this hazard. In such cases, the breather should be regularly inspected and cleaned.

Temperature Affects Oil

The last consideration is probably one of the most important and that is the range in operating temperature. Few drivers disregard warnings to change their automobile engine oil for summer or winter driving, yet many operators of machinery have not acquainted themselves with the similar need for their machinery. Proper lubrication indicates the control of friction and may be missed entirely if the proper grade is not used. Too light an oil will not separate the surfaces sufficiently to prevent the high spots from coming into contact. This action will develop wear and gradually contaminate the oil with metallic particles which, when recirculated, will assist in further wearing away the tooth contours until ultimate failure is reached. On the other hand, too heavy an oil, while insuring no metallic contact, would produce high internal friction thereby increasing the operating temperature. Too heavy a grade of oil also holds foreign matter in suspension allowing these particles to cause excessive gear and bearing wear. It is also important to note in this connection that the circulating channels in most equipment will not accommodate lubricants of excessive film thickness.

It is just as necessary to change gear oil with the seasons as in automobiles. Use of oil charts insure proper lubrication with resulting decrease in maintenance costs.

An accompanying chart is reproduced from automotive and refiners data in an effort to impress the operator with the effect of temperature on the lubricating value of various oils and the necessity of learning more about the grades he uses in order to protect his investment in high grade machinery. These charts show an impressive way of pointing out to an automobile driver the reasons for changing oil whereas it would also seem to indicate the necessity of carefully selecting the grade in order to obtain the features of uniform film thickness commensurate with the size of oil holes through which the oil must pass. Assuming an operator has Oil No. 1, as shown in the chart, successfully operating at a temperature of 130 degrees, how could he expect to circulate this same oil if the temperature dropped to 32 degrees at which point the thickness of the oil film is quadrupled?

Lubricating Qualities Needed

Summarizing the qualities to be looked for in a lubricating oil, we have:

(1) Fluidity—capability of being easily circulated.

(2) Protection—ability to establish sufficient oil film to prevent metal contact.

(3) Resistance to carbonization.

(4) Resistance to sludging.

(5) Maintenance of body under varying temperatures.

In conclusion, it might be briefly stated that the maintenance of oil field gearing (essentially no different than other gearing) requires only preservation of proper alignment and a constant supply of the proper grade of clean oil.

Reprints of the foregoing article are available at nominal cost by writing The Gulf Publishing Company, Houston, Texas

MOORE FIELD IS "*Problem Child*" OF OKLAHOMA

By FRANK B. TAYLOR
Staff Writer

SINCE the date of its discovery, June 7, 1935, the Moore field of Cleveland County has been the "problem child" of Oklahoma. Even the drilling of the discovery well, Sinclair Prairie Oil Company's (Community) Franklin 1, SE NW SE 21-10n-2w, did not follow the routine of the average successful wildcat. With completion of the well as a gas-distillate producer, some 1380 acres were indicated to be enclosed within a normally productive high. Later development established a comparatively high water table although a well planned drilling program has created a per-day prorated production of about 11,000 barrels, all of which is natural flow. At this date the potential for the field is about 410,000 by the new method of rating.

Producers in the pool do not yet number 40. Production is chiefly from the second Wilcox sand, with some production from a Simpson dolomitic section above the Wilcox. Average depth of wells is approximately 7300 feet within the producing horizon. Five failures have been counted for the immediate area of production, tending to set up arbitrary limits to the pool.

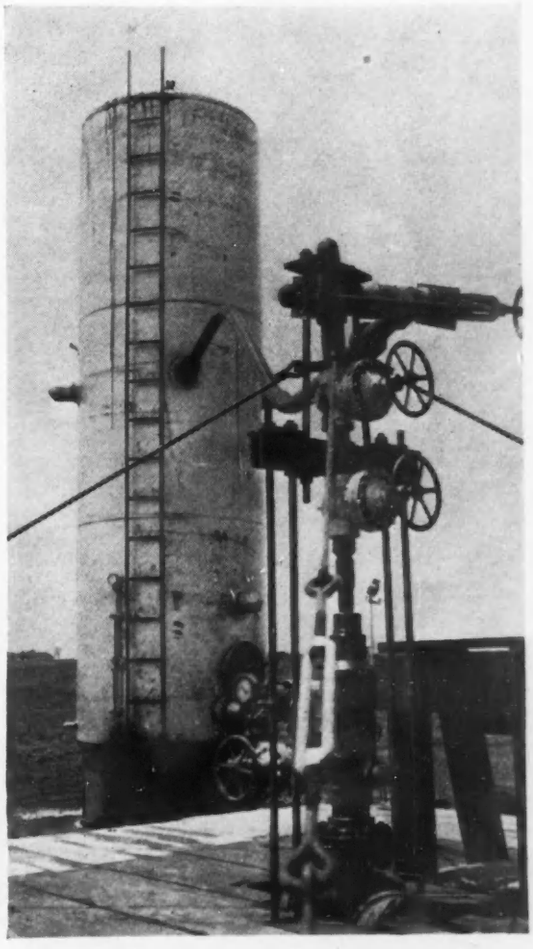
To July 1 of this year approximately 2,505,092 barrels of 47 gravity crude have been produced. Prior to the pool's designation as an oil field, Franklin 1 produced an untold volume of sweet gas, carrying from 2000 to 3000 barrels of high grade distillate per day. Practically all of the gas produced from Franklin 1 and gas being made with oil at present rates and ratios of production has been transported to the South Oklahoma City field where gasoline has been extracted. The residue has been used in Oklahoma City for gas-lift purposes, and a considerable portion has been returned to Moore field for lease operation and development.

Early Development

A series of highlights has held interest upon Moore pool since the location of the original well. Franklin 1 first attracted attention when it cored a showing of oil in Simpson dense between 7100 and 7114 feet, early in June, 1935. Interest subsided when the well drilled deeper to 7051 feet and cored a sandy lime section holding salt water.

It had already been indicated by geophysical surveys of the structure, first indicated by surface geology, that even if there was sufficient anticlinal effect present to form a trap or accumulative dome, that the contours would be comparatively flat and the productive zone would be narrow in an east-west direction. From this reasoning the appearance of salt in the Simpson tended to condemn the prospect of finding any accumulation. Seven-inch casing was set with 100 sacks of cement at 7268 feet. The hole was carried on into the second Wilcox, topped at 7268 feet, to 7291 feet. When bailed down 1000 feet the mud column rose and began overflowing the casing. In 10 minutes the well had cleaned itself and was making an estimated 140,000,000 cubic feet of gas, upsetting the dope indicated by previous shows of salt water.

On June 19 the well was tested and estimated capable of producing in excess of 200,000,000 cubic feet of gas. Due to the light load of cement used to seal the 7-inch casing, in order to permit a high casing recovery, the well was never given a wide-open



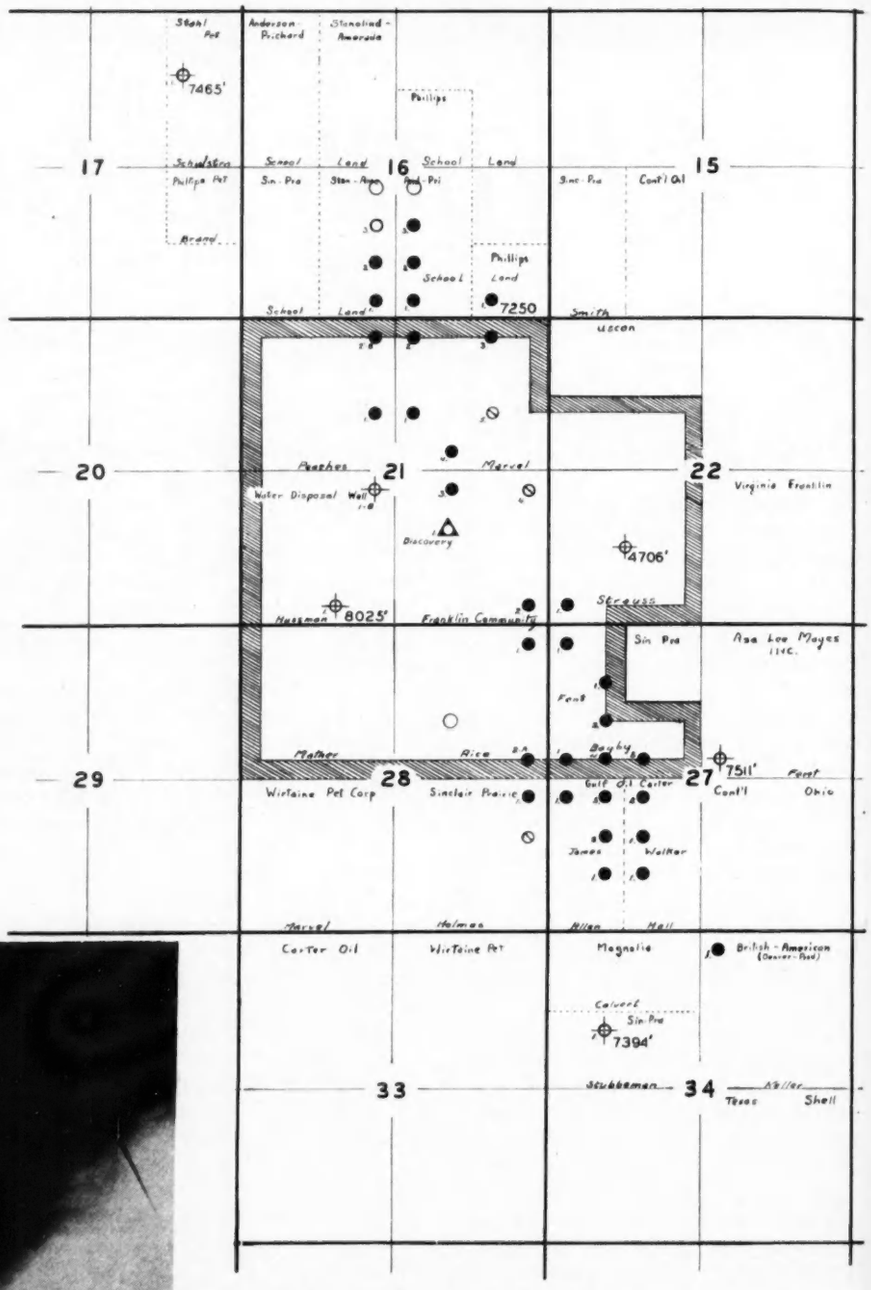
Franklin 1 today. Surface equipment at the field's discovery well. Production is into separator through 3-inch connection. Separation is at comparatively low pressure.

test. Some productive estimates placed the per day possible production at near the 400,000,000 cubic foot mark. After a short test of the volume, inaccurately gauged through not being completely open, the pressure built to 2750 pounds per square inch within 2 minutes following the shut-in. Later calculations of the bottom-hole pressure, based upon recorded surface readings, indicated an initial pressure of approximately 2840 pounds per square inch.

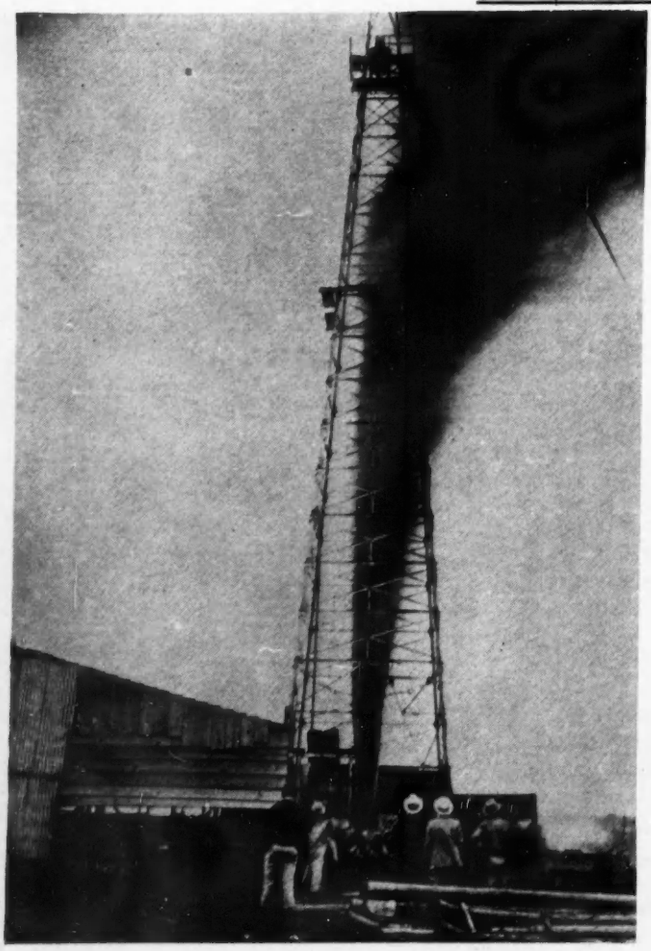
Except for the most southerly tip of Oklahoma City field, Moore pool is the first production in Cleveland County. The field is in a direct line with the Edmond-Britton-Oklahoma City trend and is only about three miles south and east of the latter field. Attempts to prove related tracts have not been successful. Also, the normal projection of the productive trend to the southeast has led to numerous surface and subsurface examinations into the possible existence of other anticlinal highs, none of which have so far been definitely located. In spite of this the area is still highly considered.

High Potentials

Unusually high potentials have been obtained by wells in Moore,



Above: Map, showing ownerships and the field's development to date, also shows the six failures partially confining the prospective acreage to about 1300 within definitely established limits. Although there are always possibilities of enlarging the productive area by locating important extensions, such have never been indicated for Moore. The community block is shown as a shaded section, now comprising 1320 acres near the center of the area. The field may have a total of 80 wells when carried to development. Present daily production is in the range of 10,000 barrels to 13,500 barrels, with late restrictions holding the crude to the lower figure. Map Courtesy Mid-Continent Map Company.



At left: Moore field discovery well, Sinclair Prairie Oil Company's Franklin 1, SE NW SE 21-10n-2w, near the center of the unitized block of 1320 acres. The well slopped mud over the casing top after fluid had been bailed down 1000 feet, June 7, 1935. This well, never given an accurate test of its capacity as a gas producer, was rated as high as 400,000,000 cubic feet per day by some engineers. A record was established by the distillate yield of Franklin 1 prior to the time it was designated as an oil well with increase of fluid and decrease of gravity of the well's production.

entirely expected in view of the large gas volumes and high bottom-hole pressures. With the decrease of the gravity of distillate produced from Franklin 1, more fluid was made with the gas and in April, 1936, the Corporation Commission of Oklahoma reclassified it as an oil well. With the new designation, operators deepened 7318 feet and recompleted. On potential test the well made 35,274 barrels of 40 gravity crude, with approximately 89,000,000 cubic feet of gas. Rice 1, completed early in July, 1936, and located ½-mile south of the discovery, obtained a potential of 14,615 barrels. Peaches 1, completed August 1, established a potential of 30,298 barrels for 24 hours with an estimated production of 35,000,000 cubic feet of gas per hour of the 4-hour test. Marvel 1 made a potential of 20,508 barrels, and Gulf Oil Corporation's James 1, completed during September, obtained the unusually high potential of 33,595 barrels for 24 hours, second only to Franklin 1.

Potential tests of this nature, made during the early days of the field, were generally made on the basis of four hours of production. During the first hour the flow was the greatest, other periods rather closely following the ratio established by the discovery which made:

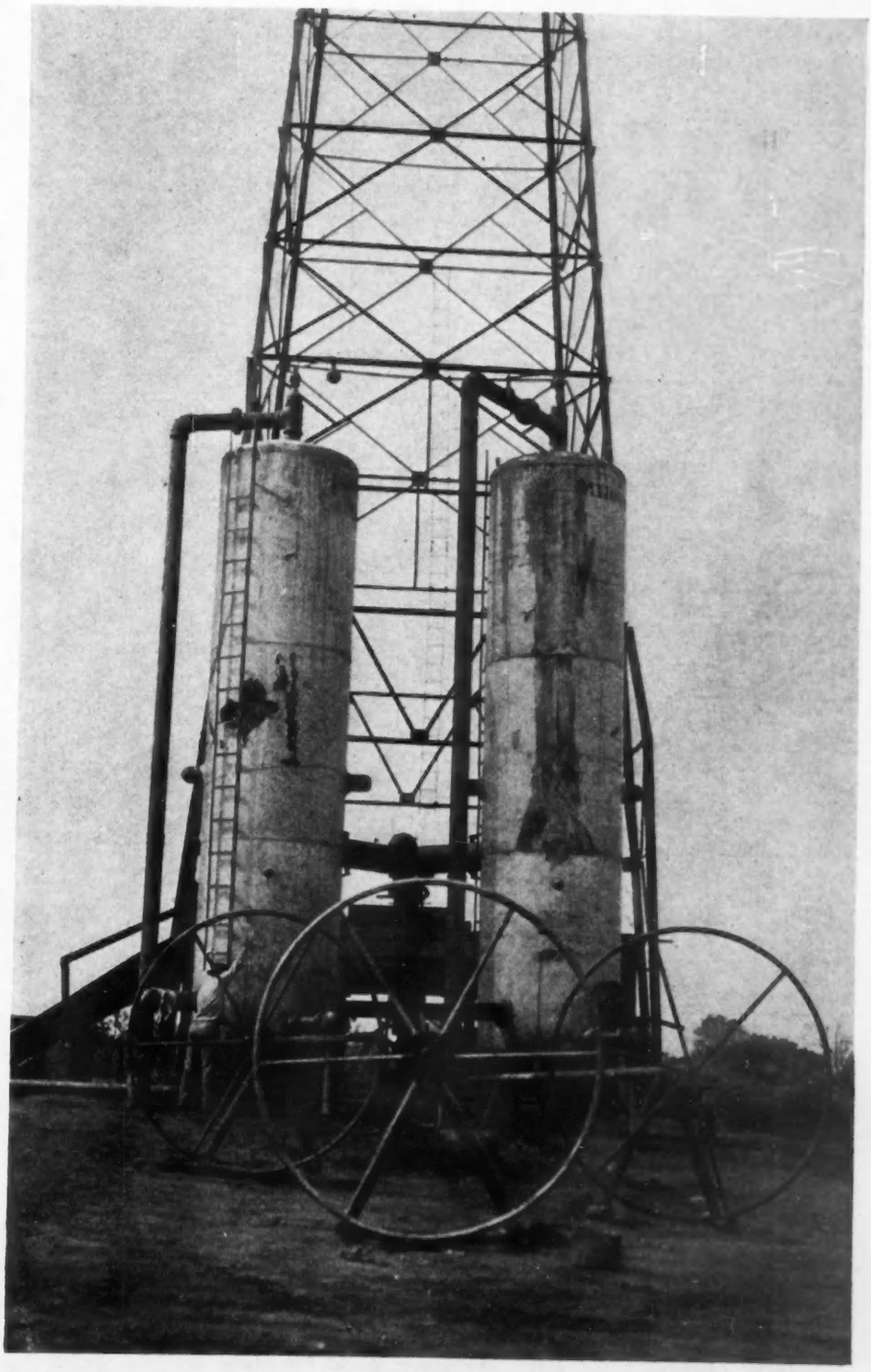
Hour	Oil Barrels	Gas (24-hr. basis) Cubic Feet
1	1,571.9	67,900,000
2	1,414.3	95,000,000
3	1,257.6	104,000,000

to establish the basis for the 35,274-barrel potential.

Moore field as a unit is capable of a rating as one of the first four Oklahoma fields in order of potentials. In this respect, certain difficulties and undesirable factors attendant the direct application of customary potential-based production to the conditions as found in Moore field led to the establishment of arbitrary potentials of 24,108 barrels for some wells. Also in view of the unusually large volumes of gas available, it has been held that gas/oil ratios have been in excess of reasonable proportions, and that by such operation of wells the reservoir energy is being depleted at a rate in excess of that required for normal, conservative operation.

With these facts in mind, and with the question of obtaining the greatest ultimate yield, the state department has set July 30 as a hearing date for possible adjustment of present production means, and for the prevention of alleged waste in Moore pool. Important information has been gathered to clarify the productive data and relationships affecting pressures and energy decline per barrel of produced crude. These engineering data and testimony of interested operators will be fundamental in arriving at conclusions regarding both potentials and productive means.

In the meantime, engineering investigation of production means and pressure decline has prompted the experimental use of bottom-hole chokes of from ⅛- to ½-inch in diameter with considerable success in reducing gas/oil ratios, and consequently, the pressure decline. More recently, Oklahoma Corporation Commission by an order issued July 6, restrained Moore field operators from producing more than 10,494 barrels per day, a reduction from 13,000 barrels. For the first time the production allowance was based upon the combined use of bottom-hole pressures and potentials. With regulations apparently agreeable to producers and conservative of the reservoir pressure now existing, their



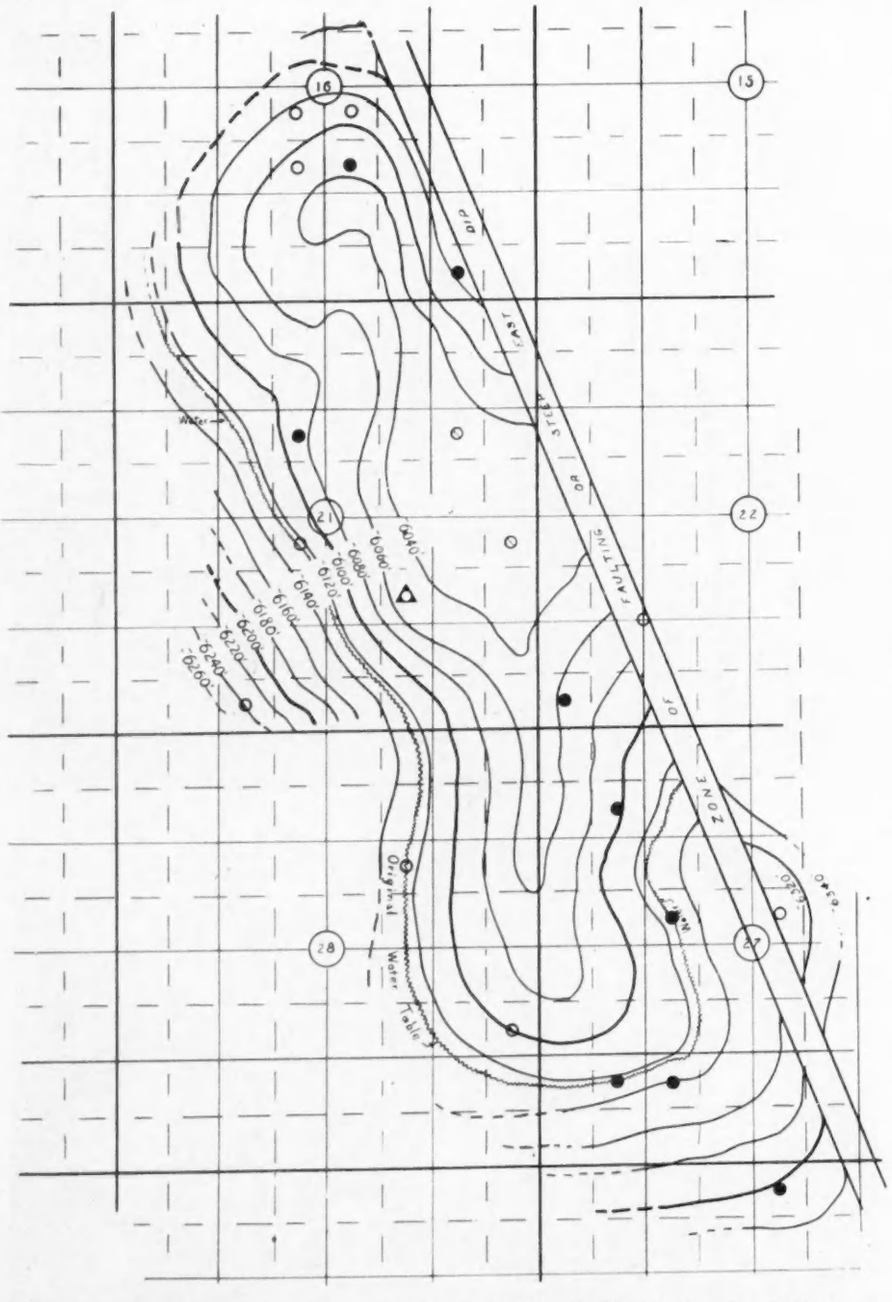
Looking into the face of Anderson Prichard's State 3, SW NW SE 16-10n-2w, Moore pool. Two separators are set at the well and control valves have extensions to valve stems. The well is one of the field's most recent completions.

continued application is probable if they prove to be of the constructive nature at this time.

Discovery and Geology

First information of the possible existence of an accumulative structure at Moore was made evident through a study of surface indications. Generally speaking these indications are not much in evidence, although the apparent confines of the present productive area may be partially traced near the northern end of the pool and tend to falsify the actual limits of the area by reflecting a larger structure upon the surface. This condition has been proven misleading by subsurface contours, (see map) and was indicated as false by geophysical means prior to the drilling of the first test.

As a result of combined surface geology, seismograph survey and aided by the general southeast-northwest trend of more northern pools, interested parties concluded from the obtained information that the area studied held an anticline some four to five miles in length, possibly sharply contoured on the east, and comparatively narrow east and west. Before surveys had been completed and deductions made on the area, the first test, located in the center of SW 22-10n-2w, had been completed. The well was abandoned April 22, 1930, at 4706 feet, too shallow a well to allow defining correlation. Subsequent drilling has indicated that this first test is east of the productive area.



Structural conditions prevalent in Moore pool, Cleveland County, Oklahoma. Contour interval is 20 feet. A water table established in the field's development at a sub-sea depth of minus 6,125 feet has risen to a position near the 6,100-foot elevation. A sharp geological feature is indicated along the east side of the field.

Asa Lee Mayes located a test in SW SW NE 27-10n-2w, at an elevation of 1185 feet. This well topped the Hunton lime at 6810 and the Wilcox at 7500 feet. A core from 7377 to 7393 feet showed oil and gas but not in commercial quantities. The wildcat, Fant 1, was carried to 7511 feet and was completed as a failure. Future development showed this test to have been 292 feet lower structurally than Franklin 1, the well destined to find oil.

Another well which played an important part in localizing development was Stahl Petroleum Corporation's Schulstra 1, SW NE NE 17-10n-2w, on a direct northwest trend from proven acreage in Moore field. It was abandoned at 7465 feet. Viola lime was topped at 7108 and bottomed at 7160 feet. A core in Wilcox between 7440 and 7445 feet showed some oil with 15 inches of hard white sand. A test run of an electrical logging device showed salt water and the well was abandoned October 15, 1936.

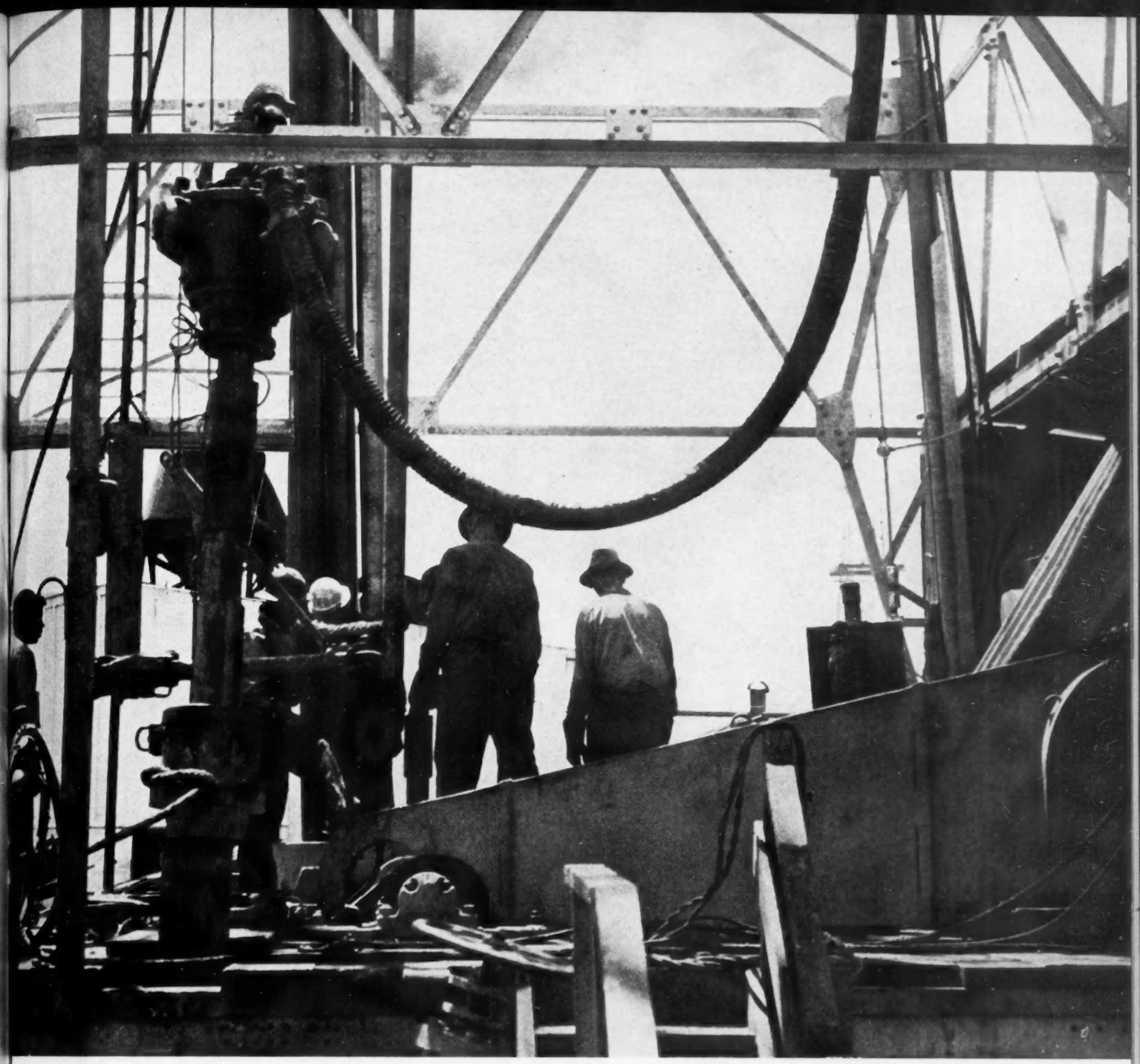
Two failures have been counted for the Unitized acreage, communitized by a number of interested operators for concerted development. Hussman 1, SW SE SW 21-10n-2w, topped Hunton lime at 6833 feet and Wilcox at 7408 feet. The well was carried to 7696 feet, and abandoned December 17, 1935, after having nothing more than shows, followed by salt water.

Hussman 1-B of the same interests, located in NE NE SW of the same section had a hole full of salt water in Wilcox at 7354 feet. Top of the sand was logged at 7333 feet. This completion has not yet been abandoned and is designated as a salt water disposal well, if and when the disposal of brine becomes an acute problem.

Sinclair Prairie Oil Company's Stubbeman 1, NW SW NW 34-10n-2w, had Hunton lime at 6750 feet, Wilcox at 7381 and was abandoned after finding only salt water in the sand. This failure is slightly west and 1320 feet south of nearest production. So far the well is the south outpost.

Geologically

Geologically, Moore pool is located at what appears to be the southern end of the "Nemaha Ridge"



CAN THEY DRILL THROUGH TO 中國?

A typical example of Goodrich improvement in rubber

OIL WELL DRILLERS say that if wells get much deeper they'll find themselves "puncturing a hole through to China." 10,000 feet, 12,000 . . . new records are being reported constantly. Yet not many years ago 3,000 feet was the limit.

Rotary drilling was being perfected —literally boring a hole in the earth as though with a huge auger, and pumping mud under pressure in a steady stream into the hole, to lubricate the drilling and carry back to the surface the earth and rock from the drill. But, to sink holes deeper than 3,000 feet required more pressure behind the stream of lubricating mud than the 200 pounds then used, and there was no hose sufficiently flexible and at the same time strong enough to carry more pressure without danger of bursting and killing the drillers.

Goodrich engineers went to work on the problem. They developed a hose made of rubber, fabric and wire which will stand a test pressure of 6,000 pounds, and with this new hose deep wells became practical, cost of securing oil went down, new oil fields were opened.

Goodrich engineers could never have made such a spectacular improvement in hose if it were not for the fact that they are constantly working on improvement in all types of mechanical rubber goods. By this constant research new rubber compounds, new methods of manufacture are developed for even the most standard Goodrich products. The same skill which made high pressure drilling hose possible is applied to any problem you may have to improve the value and reduce the cost of mechanical rubber goods in your operation. Your Goodrich Distributor can help you take advantage of these improvements. The B. F. Goodrich Company, Mechanical Rubber Goods Div., Akron, Ohio.

Goodrich

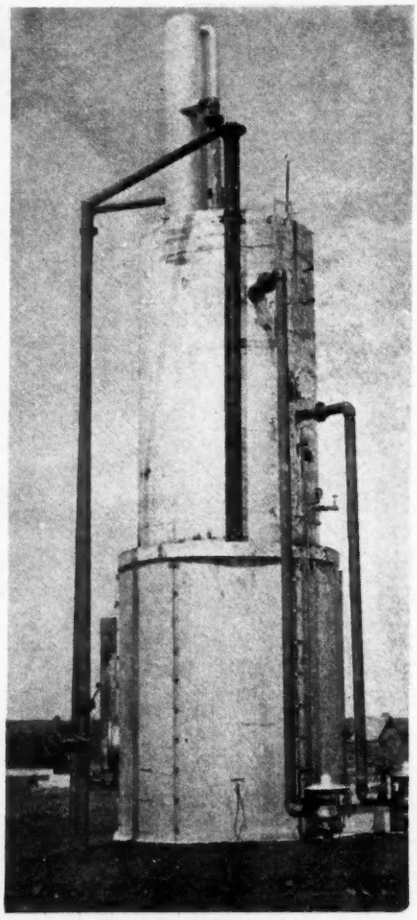
ALL *products problems* IN RUBBER

zone of weakness. This geologic feature of the northern Mid-Continent transverses part of Kansas, having been traced to a point near Manhattan; enters Oklahoma near Zero Range and follows a general ellipsoidal curve into Cleveland County, with possibilities of its being located by future surveys at point much further south and east. The zone is a long trend of weakness containing numerous discontinuous ridges, faulted sections and fractures. As such, the zone has fostered traps suitable to accumulation of oil. Exploration has proven many of the related structural highs productive, and the work of wildcatting the trend is still under way. There is reason to believe that this zone of fracturing is directly related to the Ozark uplift, and as such it follows a general path paralleling the circumference of the old range of mountains.

Moore pool is approximately 800 feet lower in subsurface elevation than is the southern section of Oklahoma City pool only a few miles north. The surface of the vicinity is irregular with very little domal reflection in evidence. Erosion has cut northwest-southeast draws through local Red Beds.

Checkerboard lime is used as the first important marker in drilling, this strata being topped at about 5500 feet. Oswego lime and the Peru sand horizons are found at near 6500 and 6550 feet respectively. First gas is generally obtained at an average depth of about 6700 to 6800 feet in Cherokee shale and sand. Although the occurrence of this gas is general, the volume is low and consequently it is unimportant. Neither the Hunton lime at about 6800 feet nor the Viola at an average of 6950 feet has been found productive and from present knowledge of conditions in the field there is very little likelihood that either of these strata will produce oil.

The major pay strata of the field is the second Wilcox, the first sand being practically absent in the area. This strata is finely grained, and with the exception of in the vicinity of the east limitation of production, is comparatively uniform. Along this latter trend, irregular lines of fracture are apparent, these consisting of intrusions of impervious solidifications much lighter in color than the main sand body. These intrusive filaments, commonly found near faulting, are an important point indicating the existence of a fault, not definitely established, but believed to exist within the position indicated on the accompanying contour map. If this fault strike is made positive through later development, it may be possible to directly correlate with the major fault bounding production in Oklahoma City pool on the east. It is also entirely reasonable from present knowledge to place the supposed fault to the west of that apparent in Oklahoma City. This would place the Moore field accumulation to the west of a secondary, or minor, dip. In either case, there is sufficient proof to support the contention that the east of Moore is established by a faulted condition, possibly a reversed throw.



Type of treater being used on some Moore pool wells now making salt water. Encroachment is particularly evident along the northwest contours, necessitating plug-back jobs in some wells. This installation is on Peaches 2-B, a community well.

As a secondary producing horizon, the Simpson Dense, or dolomitic section is producing in some of the more southerly wells of the field and there is a possibility that this strata may be developed to the east and southeast of the discovery. One well, Denver Producers & Refiner's Keller 1, NW NW NE 34, found the Wilcox contained only small shows and salt water at the location, and were able to make a commercial producer in the Simpson above the Wilcox. After being twice acidized, the well made between 100 and 200 barrels per day with some salt water from 7300 feet in Simpson formation. The producing section of this pay is finely chrystaline, closely-textured dolomite, with minor beds of chert and green shale. In addition to Keller 1, completed producers on the Bagby, Allen and Hall have encountered favorable and commercial accumulation in Simpson Dense.

Pool Development

Probably half of the productive area of Moore pool is contained within a communitized block with 11 firms participating. Sinclair Prairie Oil Company, holding the largest share of the interest, has been designated as the operator and has directed development since the first test on the acreage. In all, about 1320 acres are included within the unit, which takes in all of Section 21, N½ of 28, S½ of NW 22, SW 22, S½ NW 27, and NW NW 27. Interested concerns are Sinclair Prairie Oil Company, Mid-Continent Petroleum Corporation, Gulf Oil Corporation, Wirt Franklin, Cromwell-Franklin, Carter Oil Company, Continental Oil Company, Empire Oil & Refining Company, Standard Oil Company of Kansas, Phillips Petroleum Company and Twin State Oil Company.

Franklin 1, SE NW SE 21-10n-2w, was located near the center of the unitized block, and was spudded late in January, 1935. Hunton was topped at 6780, Viola at 6943 and first show was had at 7045-7050 feet. Rice 1, NEc 28-10n-2w, also a community test, was the second producer of the field, receiving a potential early in July last year of 14,615 barrels from Wilcox with casing set at 7205 feet. Other locations were soon announced both within the solid block and on acreage held independently. The necessary impetus had been given to extensive development that is today only half complete.

Thirty-two completions have been counted for the field to the first week in July, although potentials had not then been obtained on all of these wells. Seventeen are within the unit.

Drilling on the present 10-acre plan would allow an additional 50 wells to adequately drain the area indicated to be productive. It does not appear, however, that this large

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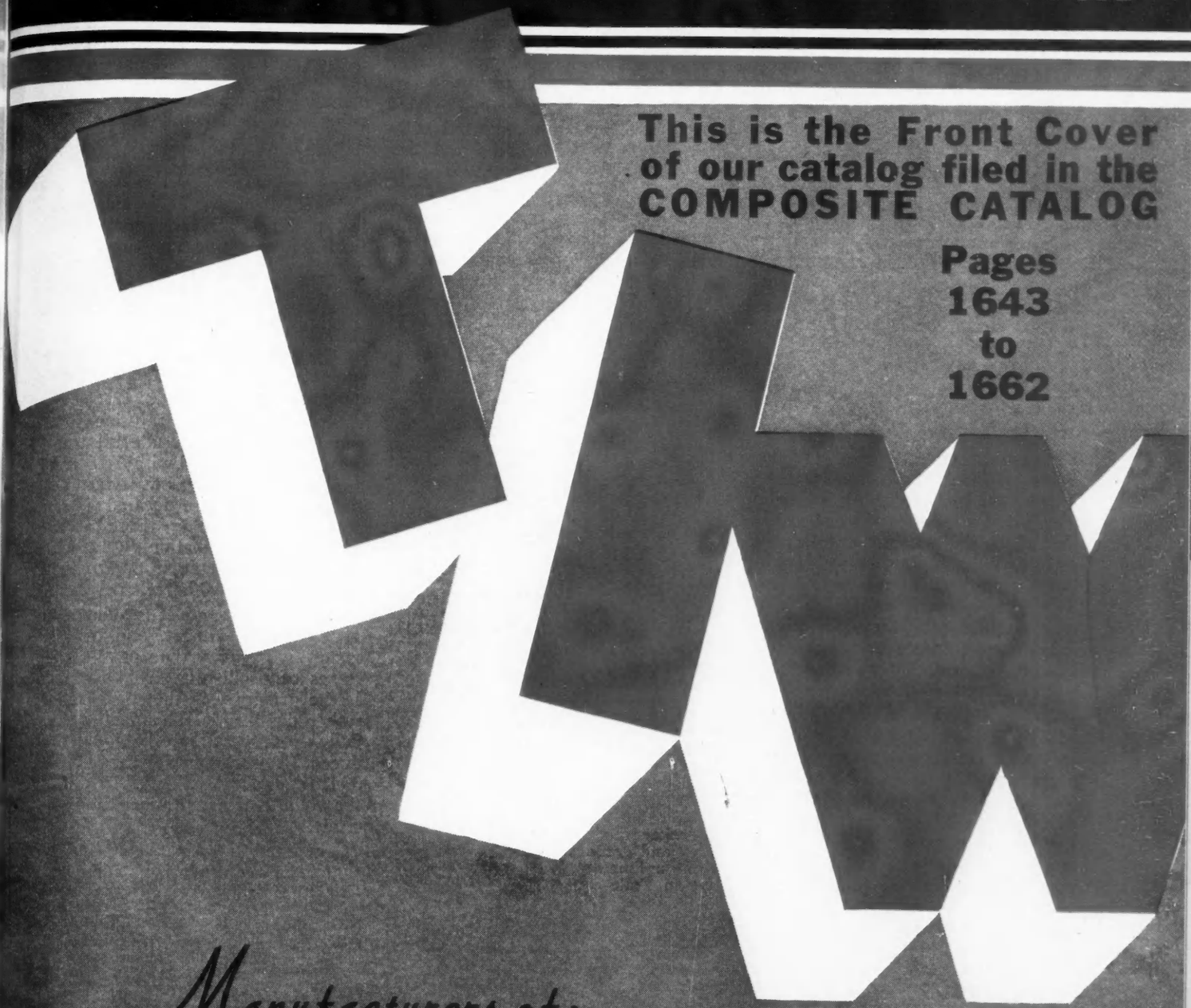

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number of completions will be economically possible due to depth, reservoir conditions, single pay strata and determined encroachment of edge water. More locations are being announced, and drilling is progressing steadily to a point of well saturation that is yet to be established.

Drilling Practices

Approximately 277,400 feet of hole have been made in completing both the producers and the failures of Moore pool. This represents a total drilling expenditure of about $3,340,000; about $90,000 per well to 7300 feet in Wilcox sand. An estimated 30 more ultimate completions, with slightly higher drilling costs, will a little more than double this figure.

Drilling in Moore is not difficult. Formations penetrated are comparatively soft when measured by standards of the northern Mid-Continent. The relative flatness of strata does not have the tendency toward crooked holes so frequently in fields having steeply dipped formations. Total drilling time per well is in the neighborhood of 70 days, this figure including cementing and drilling in, but not making allowances for difficulties of enforced delays.

In the south end of the field, a bed of chert about 30 feet in thickness and apparently localized to a streak across the pool, caused the only major drilling difficulty other than the natural danger of penetrating the high-pressure reservoir. This chert is exceptionally hard and difficult to penetrate, being both granular and abrasive. In passing through this formation in one well the driller used 26 bits in 30 feet of drilling.

All wells are with rotary equipment, fuel being field gas or returned residue from gasoline plant treaters. Water is obtained from wells drilled to gravel and sand strata between 400 and 800 feet near Franklin 1 on the unitized block. There are four water wells, two equipped for gas jet, all being pumped at this time, with water being piped to widespread locations.

Casing strings are not set at definite spots, these positions being determinable by drilling factors in the case of the short string, and by production levels in the case of the production string. Nine and five-eighths inch, 40-pound casing is generally set between 3400 and 4200 feet, this practice general among the several companies. Oil string is 7-inch, 26-pound casing, set near the top of the pay horizons. From 100 to 400 feet of 13-inch is set as surface pipe. Two and one half or 3-inch tubing is used for production, although during early, flush production, much crude was produced through casing.

Conductor pipe is cemented to surface. Oil strings are cemented with about 1000 to 1400 sacks and the 9⅝-inch is usually cemented with about 800 to 1000 sacks.

Drilling markers are shown in the table, depths above the Checkerboard lime being relatively unimportant with the exception of casing spot for 9⅝-inch, which is usually at a point in Pawhuska between 3500 and 3600 feet.

DRILLING MARKERS BASED ON ELEVATION OF 1220 FEET

Strata	Depth in feet
Checkerboard lime	5530—5640
Black shale	5640—5770
Broken sand	5770—5780
Sandy lime	5780—5790
Black shale	5790—5830
First oolitic lime	5830—5860
Black shale	5860—5972
Second oolitic lime	5972—5995
Black shale	5995—6059
Lime	6059—6106
Black shale	6106—6348
Lime	6348—6362
Black shale	6362—6436
Sandy lime	6436—6441
Black shale	6441—6470
Sandy lime	6470—6477
Black shale	6477—6486
Sandy lime	6486—6500
Black shale	6500—6515
Oswego lime	6515—6531
Peru (show gas)	6531—6564
Black shale	6564—6741
Brown lime	6741—6743
Cherokee sand (show gas)	6743—6766
Grey and green shale	6766—6780
Hunton lime	6780—6840
Sylvan shale	6840—6937
Viola lime	6937—6988
Simpson dense	6988—7090
First Wilcox	7090—7115
Simpson dolomite	7115—7243
Hard lime	7243—7245
Second Wilcox	7245—7257

A run of casing was made in Carter Oil Company's Hall 1, NW SE SW 27-10n-2w, near the south end of the pool to a depth of approximately 3500 feet, all of the string being electrically welded. Casing was 9⅝-inch, ends inserted into blind collars welded into place. Three welders were employed on the job, the string being run in 10 hours and 45 minutes and cemented in place with 1000 sacks.

Pipe Line Outlets

The first line of the area, of 6-inch pipe, from Franklin 1 within the Community block to Phillips Petroleum Company's Capitol Hill Station near the south end of the Oklahoma City field is still in service. In addition, Phillips Petroleum Company now has a 20-inch from near the north line of 21-10n-2w to the Capitol Hill Station. Sinclair Prairie Oil Company has a 16-inch line to Oklahoma City field. In the field this firm also has numerous gas laterals up to and including 16-inch diameter main gathering lines. Anderson-Prichard have a 4-inch line from Section 16 in the field to Oklahoma City. All of the above are natural gas carriers, and this field-plant service is augmented by an 8-inch residue return to the field for operating purposes.

Oklahoma Pipe Line Company is operating a combination 6- and 8-inch from Moore to Oklahoma City station. Semi-portable units are used in the field, natural gas being the fuel. Reciprocating pumps are prime movers.

Sinclair Prairie Pipe Line Company is the major crude oil transporter from the field with 4-, 6-, and 8-inch lines offering outlet facilities. Pumping units are located in the pool, delivery being made at the firm's Dolivar station, Oklahoma City. The lines have an approximate capacity of 20,000 barrels per day.

Most of the crude produced in Moore field is uncut, and of relatively high gravity. During the early stages of production from Franklin 1, the gravity was that of gasoline, rather than crude. This factor gradually dropped as more fluid was produced. Production today ranges from 39 to 49 degrees, depending upon the volume of gas produced with the crude.

The analysis of a representative sample of the crude is as follows:
Gravity of sample—46.6 degrees

Gasoline	...45.5%	66 gravity
Kerosene	.12.67%	41.5 gravity
Bottoms	..41.83%	25.8 gravity API

Reserves and Production

Production in the field has lately been almost entirely through either 3- or 2½-inch tubing. Prior to this procedure, much production was obtained from casing and casing potentials were taken. As previously noted the use of bottom-hole chokes is retarding loss of reservoir energy and it is expected that under the present manner of conservative production, the ultimate recovery will be relatively high.

When first proven, the bottom-hole pressure was only slightly less than 2800 pounds and today is about 1535 at minus 6000 feet. During early stages of production, reservoir pressure losses ranged to as high as 10 pounds per square inch per day with routine withdrawals. More re-

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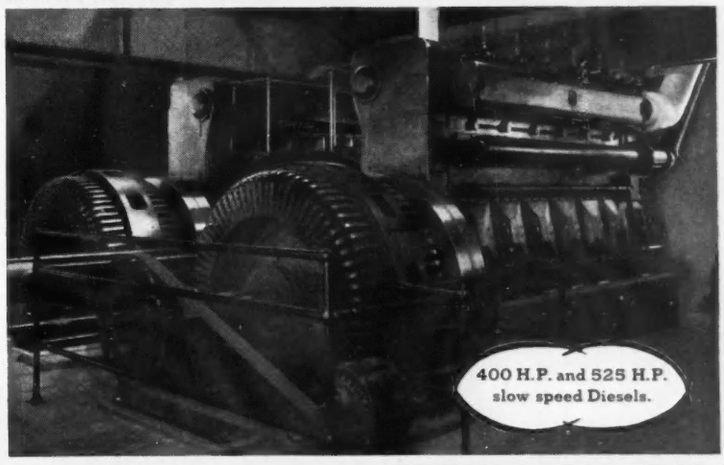

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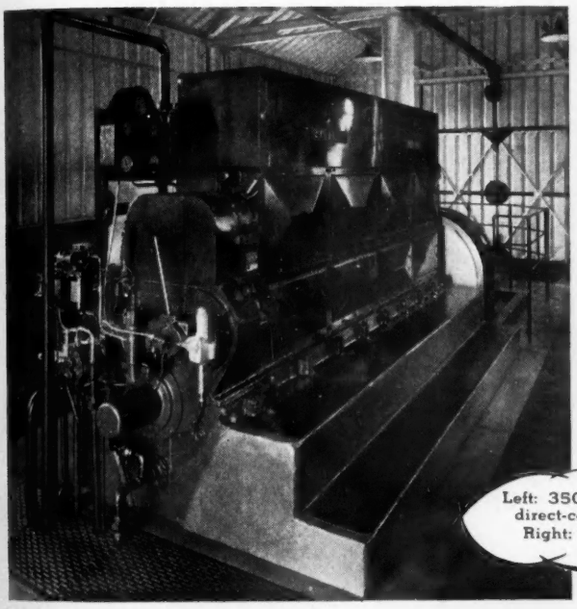

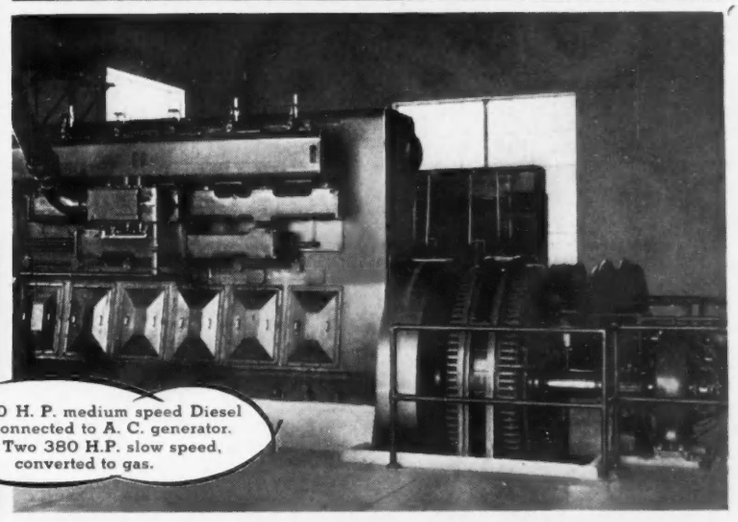

Left: 350 H. P. medium speed Diesel direct-connected to A. C. generator. Right: Two 380 H.P. slow speed, converted to gas.

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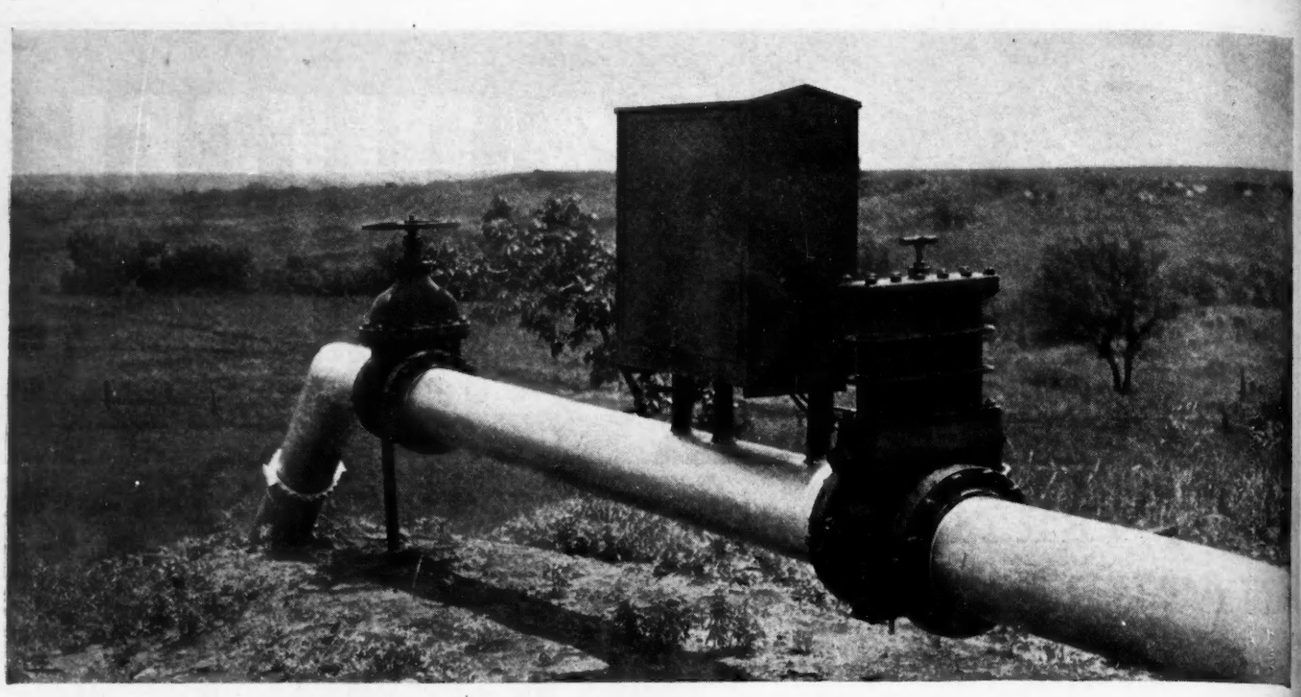


Measuring gas produced with normal production through a 12-inch meter run. Orifice meter, enclosed in the picture, measures the flow. The enclosed orifice plate, within the protective flanges, is a customary installation in the field.

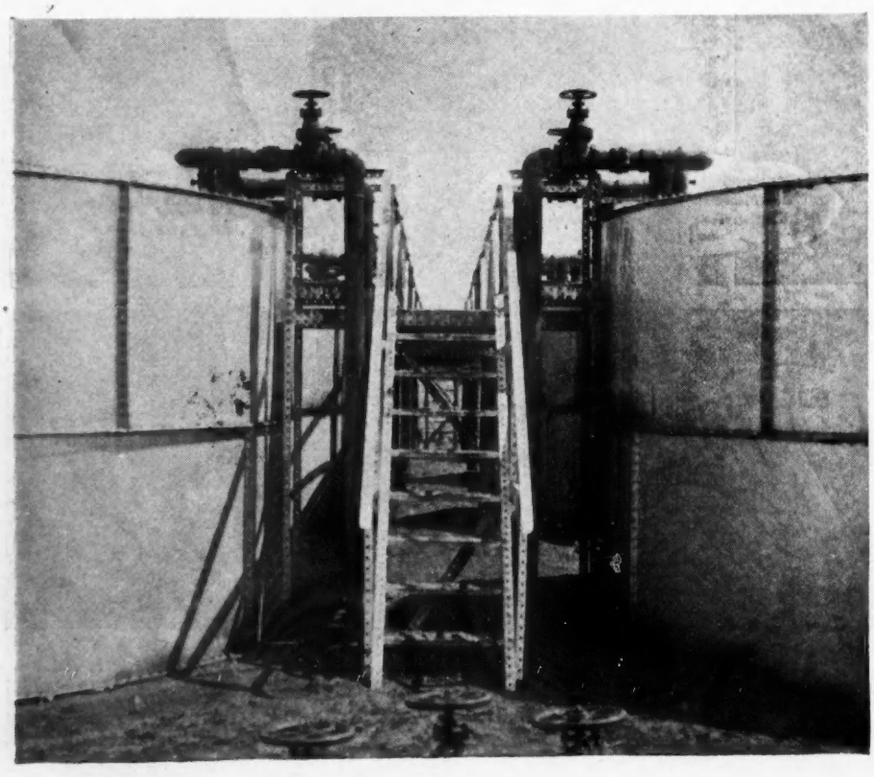
cently, examination has shown six to seven pounds per day loss and within the past month, with most production through chokes, the reduction of reservoir pressure has been very slight in proporation to the volume of produced crude.

Considerable difficulty has been experienced in control of some wells of the pool, particularly during potentials. Sand from the producing horizon has endangered a number of the wells, and although there have been no wild ones in the field, it has only been due to recognition of the danger and the use of adequate equipment.

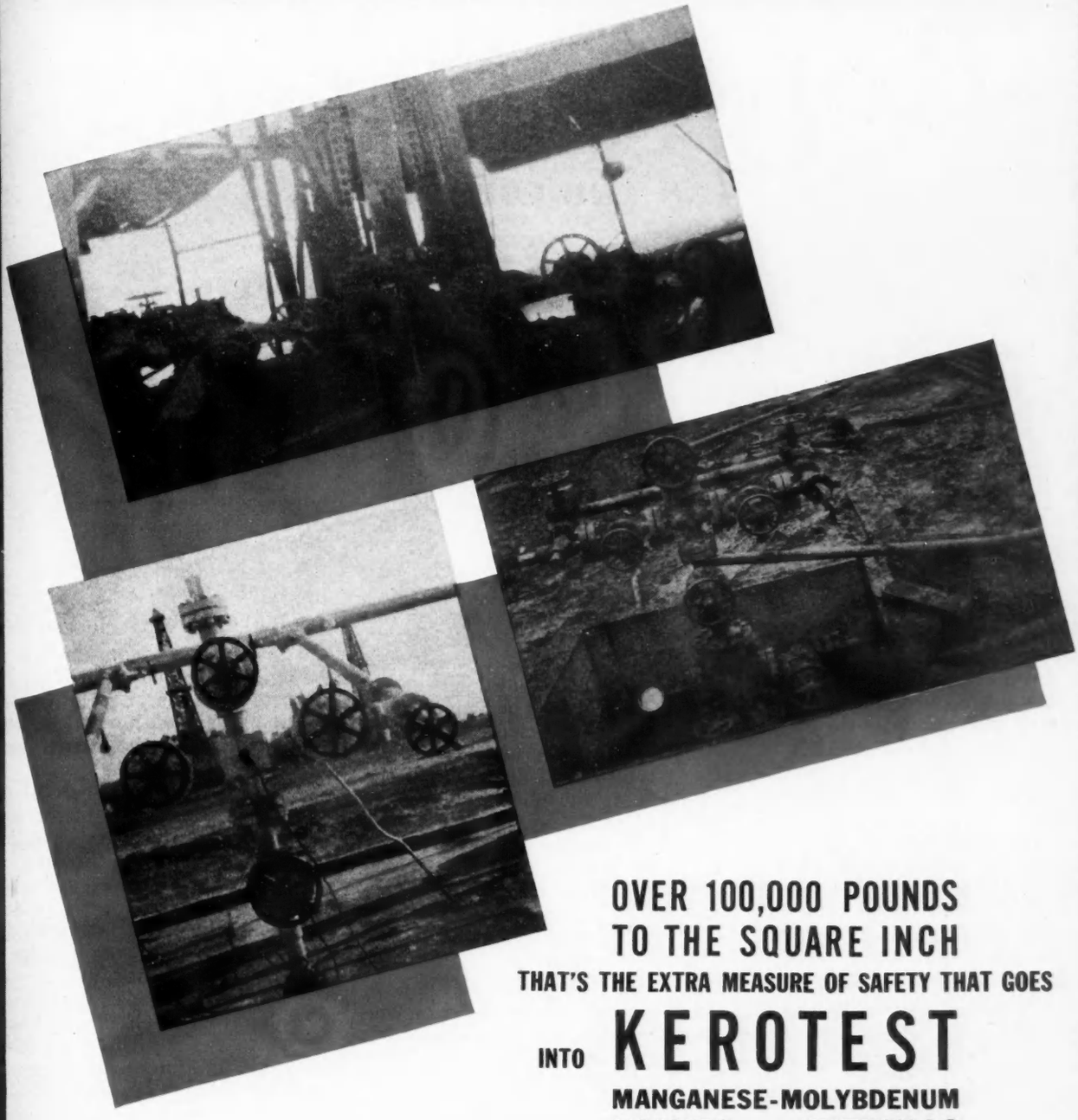
A particular instance of difficulty was the severe cutting of the bottom master gate on Anderson Prichard Oil Corporation's State 3, SW NW SE 16-10n-2w. An interesting manner of making the changeover to a new gate was used in the well, making use of a casing plug. Pressure engineers went into the 7-inch oil string and set a plug at about 60 feet below the surface. After coming out of the hole the pressure was exhausted from the upper section of the casing and the master gate was changed. When the task was complete, the casing was filled with water, the valve in the plug released and the plug freed by jarring the slips loose.

From one to four separators are used on each of the wells in Moore field, with most of them using a single separator at this time. Production is usually regulated to a regular withdrawal, most of the production being obtained over a pre-determined period at a constant rate rather than by swift or irregular production.

Calculations of the total crude that can be produced from Moore field vary between 20,000,000 and 50,000,000 barrels. From salt water encroachment it appears that a rebuilding of pressures is being effected and a reserve calculation with this as a major consideration, plus the action of the drive, gave an estimate of ultimate recovery at 36,000,000 barrels. Other estimates based upon known engineering factors would place the ultimate recovery at 33,000,000 barrels as an average. These estimates include probable recovery indicated from Simpson Dense. On the basis of 30,000,000 barrels, only about 8.4 percent of the total recovery has been obtained to date..



A battery of eight 500-barrel tanks handling crude on the community block. All equipment on the field is modern and designed to latest specifications. A glance "down the walk" shows neatness and cleanliness, another distinctive feature of the field.



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DISCUSSION ON *Repressuring* IN THE FORM OF *Questions* BY PRODUCERS WITH *Answers*

By HARRY M. RYDER, Petroleum Engineer

REPRESSURING work, or to use a more general term, secondary recovery operation, has become increasingly important in the economic welfare of the country, and especially so to those interested in settled production. In addition to the producers concerned, this includes no less the owners of pipe lines and refineries dependent on such areas for their crude.

Picture More Accurate

Technically, secondary recovery operation is the most interesting thing in the world to me. I have lived it for a good many years, and hope to live it for many more. We have learned a lot about it in the past 15 years, but we have more to learn in the future. This information we are accumulating as fast as we are able. Field experience is rapidly increasing and by adding to this the results from a number of laboratories, we have a far more accurate picture of what is going on in our oil bearing horizons than ever before. We have passed the horse and buggy stage, but much work remains to be done to reach the air transport stage.

Considerable Difference of Opinion

There must necessarily be a considerable honest difference of opinion. Opinions which I express as my own I know are in certain cases different from those held by others. This does not mean that I do not respect other opinions. We have had many experiences of our own, and have tried to analyze the experiences of others, from all this we draw conclusions.

Oil sands are exceedingly variable, not only from pool to pool, but often from well to well on one property. Since accurate sand analysis is difficult, and costs money, these variable conditions necessarily bring about varying experiences. At the present state of the art, it would not be possible for the conclusions of different men to coincide at all points. I believe, however, that as experience grows, the open minded operators find these differences of opinion becoming smaller, meaning that we are reaching a point of much greater operating efficiency and consequently of greater profits.

Mr. Hogg has spoken to you on the subject of repressuring on one or two previous occasions. He speaks wisely from much successful experience. We are not in agreement on all points, and it could not be otherwise. But I do listen carefully when he speaks and have tremendous respect for his opinion. I feel the same way about others who have built their knowledge on competent experience.

These remarks have been made with the hope that you will keep them in mind when considering any statements I may make during this discussion. Secondary recovery is young and vigorous. It will grow enormously on the foundations we have laid. It is too much to expect that we will not need to revise some of our present concepts of its mechanism. This only serves to increase the courage of our present convictions, and leaves us free and happy to go on with the work.

And now to proceed with the questions:

Question 1. What do you think of laboratory tests on cores in regard to repressuring? Will you discuss the value of saturation determinations and how close they might approach the actual saturation of a sand?

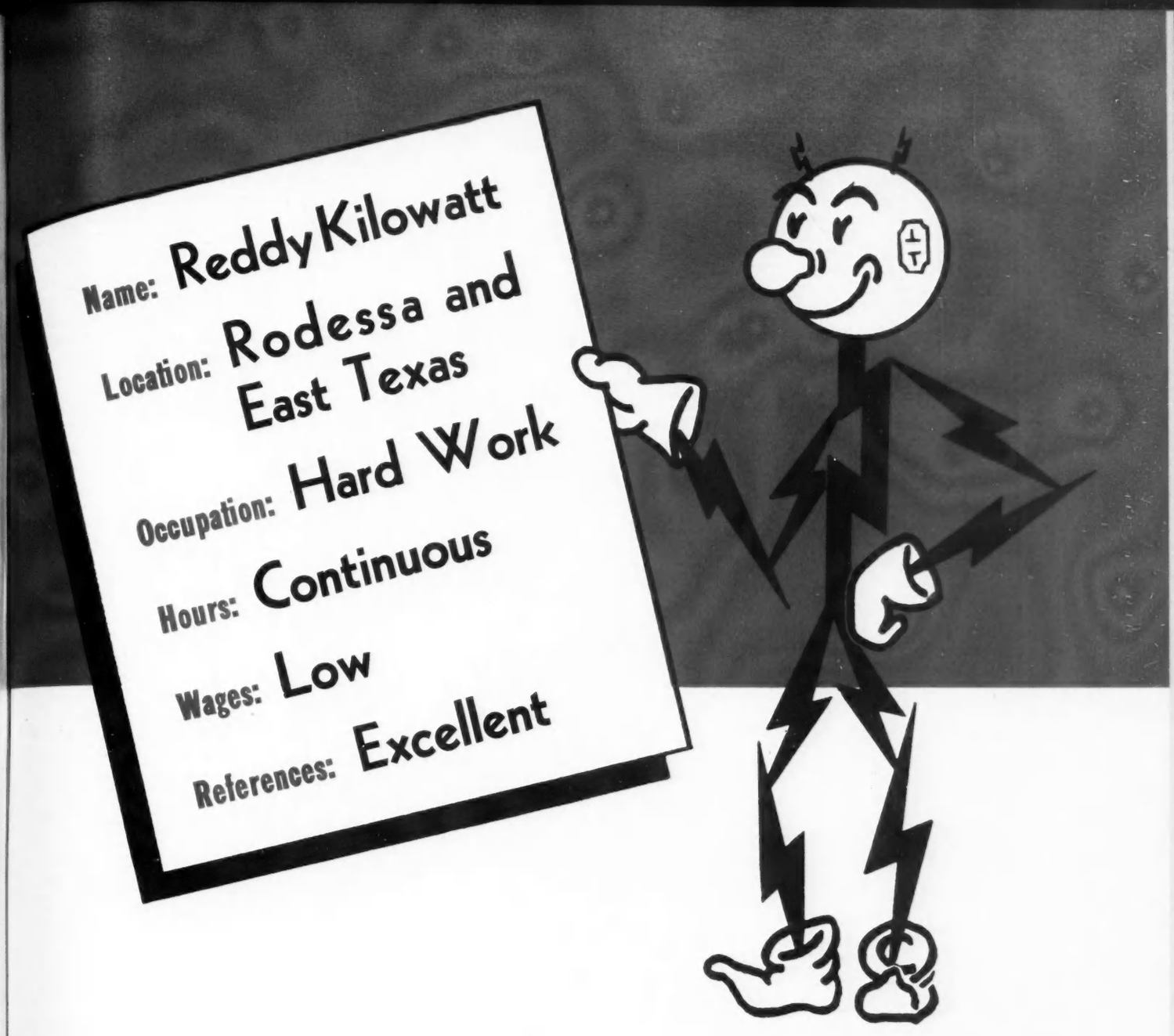
We are convinced that laboratory tests are essential to the most efficient second recovery operation, and therefore, to the greatest return on the investment and effort involved. This, of course, presupposes a competent interpretation and application of the results of the laboratory work to the field operation, as well as competence in the laboratory itself. It is difficult for us to believe that this interpretation and application can be generally competent when it lacks a basis of training and experience.

Saturation Test Important

In estimating the amount of recoverable oil the saturation test becomes of first importance. It is, therefore, essential that the saturation figures properly reflect the amount of oil in the sand, at least at the point from which the sample has been taken. This means that the sample as tested must contain as nearly as possible the same amount of oil when it reaches the laboratory as when it was in place. It also means that the laboratory test must show as nearly as possible the amount of oil actually in the sample.

The sample of sand as it reaches the laboratory may have lost oil

*Presented before the Kentucky Oil and Gas Association at Lexington, June 4.



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for one or more of the following reasons:

1. Drilling water may have washed some oil from the sample.
2. There may have been considerable evaporation in spite of precautions taken.
3. Oil may have been rubbed or washed off of the sample during handling.
4. Internal gas pressure may have forced oil out of the sample.

When it is realized that a sample of sand weighing several ounces may contain a tenth of an ounce of oil, or less, it can be readily appreciated that a very small loss of oil may cause a very considerable error in the computed results. Without some pressure, water will not voluntarily enter oil sand and drive out oil. In the case of diamond drilling, where the hole is full of water for considerable periods, it is entirely possible, and in the case of the more permeable sands it is very probable that the water pressure has removed some oil. Where cable tool coring is used the hydrostatic pressure is much less and the removal of appreciable oil from the sample is much less likely. Mr. Hogg last year in Owensboro presented some evidences in support of this view.

Chip Method

In order to enable the sand sample saturation to be as truly representative of field conditions as possible a method of procuring chips an inch or two in size has been evolved by several producers. The well is first cleaned out as completely as possible with a sand pump. The bit is then dressed as sharp as the driller can be prevailed upon to make it, and somewhat hollow. With just enough water in the well to keep free oil off the bottom, possibly one pail, the tools are run in to a point probably 30 feet off bottom. Without hooking on the beam the tools are then dropped on bottom as fast as the bull wheels will turn, and caught with the brake just as bottom is reached. This operation is repeated several times and the tools withdrawn. All free material is then brought to the surface as quickly as possible with the sand pump and is dumped on the derrick floor. For our laboratory the samples are immediately placed in individual bottles of clean petroleum ether and the bottle immediately closed. This sample is then ready for the laboratory.

Core Bleeding Reduced

In this manner we feel that unless there is serious bleeding of the sample before it reaches the ether, it is truly representative of the saturation in the sand body. So far as we have made comparisons between this method of sampling and cable tool coring samples the samples from the cable tools show up very well. Where comparisons have been made between this method and the method of wrapping the samples in lead-foil or paraffin and placing them in sealed containers, we find very considerable loss has taken place in spite of precautions to prevent it.

In the laboratory the most used method today in measuring the oil from the sand is to remove the oil in a retort heated red hot. In spite of the greatest care and the most competent of corrections we are satisfied that the results are, generally speaking, entirely too low. Tests have shown that for each gram of oil recovered from the retort two grams, more or less, of hydrocarbon gases from the oil are released and not measured. Further, the oil recovered has been in a large measure cracked and is much lighter than the crude. Again, some carbon is retained on the sand. All this means that many things have happened to the oil, and that slight variations in the crude, in the sand permeability, or in the technique may, and sometimes do, cause undeterminable variations in the results.

New Method for Measurement

For this reason a new method has been developed for the extraction and measurement of this oil which does eliminate these difficulties. The method consists in placing the sample and ether from the sample bottle directly into an ordinary Soxhlett extraction apparatus and extracting in the usual manner. The ether is then evaporated from the oil and the quantity and gravity of the oil determined. From an evaporation curve, the quantity of oil is corrected to its original gravity and the correct answer is before us. We expect a more complete description of this method will be published shortly.

In this manner we do measure the actual amount of oil removed from the measured amount of sand. The oil is still crude, and we are satisfied that we have all of it and nothing extra. We now have, therefore, a correct measure of oil saturation as it exists in the sand body at the point from which the sample was removed.

This, however, is not in itself a measure of the amount of recoverable oil. An accumulation of laboratory and field experience now enables us to determine for most sand bodies the amount of oil which must necessarily remain in the sand after any particular method of secondary recovery is complete. Except for the oil lost in pocketing, the difference between the total oil contained and this figure will be the amount of recoverable oil. The amount of pocketing will vary greatly in different areas but can be approximated, assuming a detailed knowledge of local field conditions and experiences.

We also make the laboratory tests to enable us to anticipate necessary pressures, well locations, etc., to enable us to apply proper remedies through multiple packers or selective shooting for variable permeability conditions, and to enable us to understand and correct unusual operating conditions as they may develop.

Question 2. What is your theory regarding the action of gas or air in the reservoir and on the oil to cause an increase in production at the wells?

Air supplies the energy necessary to move the oil toward and into the producing well. It accomplishes this both by pushing the oil ahead of it and by dragging the oil along with it. We would expect that the pushing operation would be accomplished with a very small air-gas production and with a decrease in the gravity of the oil as gas is forced into solution, gas which was free in the oil sand body. As the dragging stage is reached the air-gas volume must increase and the gravity of the oil instead of increasing will decrease, that is the oil tends to get heavier. This is because the air will tend to strip dissolved gas and light gasoline fractions from the crude. This condition may be checked by a determination of the Btu value of the gas in the air-gas mixture.

Dragging Gives Higher G/O Ratio

Dragging, therefore, means a higher gas-oil ratio than with pushing and the consequent decrease in operating efficiency, but can not be completely avoided.

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Channeling is usually an exaggerated cause of this dragging action, with little oil available to drag.

Since almost all sand bodies show considerable variation in permeability from stratum to stratum, and as air flows more readily through the open sand, it is probable in all areas that the dragging action is well along toward economic completion in some strata long before the pushing action has ceased in others. It is inevitable that the gas-oil ratio will greatly increase at some time toward the later stages of repressuring at any point.

Question 3. In repressuring our limestones with air, we have had trouble with the balls and seats being pitted. Perhaps you can advance some theory for this cause. The wells carry salt water and one analysis of the oil shows .520 percent sulphur. Would this amount of sulphur combined with any element of the air or water be enough to form any acid which might cause this trouble?

A refinery chemist should be able to indicate just what corrosion trouble might be expected from combined sulphur. We have, however, a test under way in our laboratory which we hope will show us just what effect the presence of gypsum in salt water may have on balls and seats. In our experience valves corrode and become pitted much more rapidly in some wells than in others, at times just one location away. In every case where corrosion is severe in the absence of air we have found gypsum in the water. In the test we are making we are determining the effect of salt water with and without gypsum on all of the steels used commercially today in balls and seats. We are not yet prepared to announce the results of this work.

The combination of air through the sand and salt water in its effect on balls and seats has at times been terrible, the only corrective measure for it that we have been able to apply has been to get rid of the air or to use a less corrosive steel, and neither of these has been entirely satisfactory.

Question 4. Have you had any experience with repressuring limestones, if so what problems have you encountered?

My answer to this question is no. It would seem to be exceedingly difficult to plan an operation on cavernous limestone prior to field experience in the particular area concerned. Conditions would seem to be so entirely unpredictable that a field test would be indicated in any such territory it is desired to repressure. The limestones in which cavities have been filled with a porous material or limestones which are rendered porous by a considerable sand content or otherwise, it would seem, should behave very similar to sand bodies. In the case of the former we would expect a larger than usual percentage of the oil to be contained in unconnected cavities and therefore unavailable. This condition would decrease the effective saturation and therefore the probable recovery to an unpredictable extent.

Question 5. What about the problem of open flow? If the open flow continues to increase on affected wells, what should be the maximum volume allowed to come off before other steps are taken, if any?

The casing head flow of air-gas when measured under the usual gas line pressure with a permanently installed orifice will give more valuable results than open flow measures, and with less effort. We believe this method should be used wherever practicable. However, open flow tests are valuable in determining the relative air-gas production, and to give an indication as to which wells are blowing through.

Number of Angles Involved

The maximum amount of air-gas allowable per barrel of oil produced will depend on a number of economic angles in addition to the technical ones. Any large amount of air is in all likelihood coming through certain layers from which most of the oil has already been driven. Of itself, then, it would not be doing any harm and it is not probable that it causes any unfavorable disturbances in other layers, provided the back pressure in the producing well is not allowed to reach a point where a slowing down or reverse movement will take place in other productive layers. On this basis then, the principal disadvantage of channeling would seem to be in the dollar loss caused by moving this air in and out of the sand and in the possible excess demand this air makes on the equipment and the pipe lines. It is also possible that this excess air coming through will increase the air content of the air-gas mixture to a dangerous value or otherwise inconvenience the operation. The maximum allowable volume of air-gas for each well must therefore necessarily be determined for the individual well in accordance with the above, not neglecting other possible ill effects of such corrective measures as may be available.

Subject to the above argument we like to see the gas-oil ratio kept well below 2000 cubic feet per barrel.

Question 6. What is the advantage or disadvantage in practice of alternating the intake volume every 12 hours or for any other period of time?

Intermittent repressuring, the alternating of periods of pressure and no pressure at the pressure wells, tends to disturb the position of the oil in the sand and the intention is, in this manner, to bring more of this oil out of minute pockets and into the channel of flow. Where great differences of permeability exist in connected sand strata, the pressure built up in the tighter sand when the pressure is on tends to drive some of the nearby oil vertically into the more open layers, during the quiet period, to make this oil more immediately available for production. This mechanism would in addition tend to keep a supply of oil in the more open streaks and to this extent to inhibit the channeling of the open streaks.

This latter effect probably provides the dominant advantage of intermittent repressuring in the Venango sands in Pennsylvania, with its exceedingly permeable "Pebble Streaks."

Complications of Intermittent Repressuring

On the other hand intermittent repressuring causes certain complications in operation. It also requires that a choice be made between higher operating pressures or lower volumes. If the volume is lowered without an equal lowering of air-gas production the available energy will be reduced and slower recovery result, except as more oil is made available for production. If higher pressures are used a greater tendency for channeling is possible, which must be more than offset by the interference with channeling described above. It does not seem possible, therefore, at this stage of the game to predict in advance whether or not any advantage will result from

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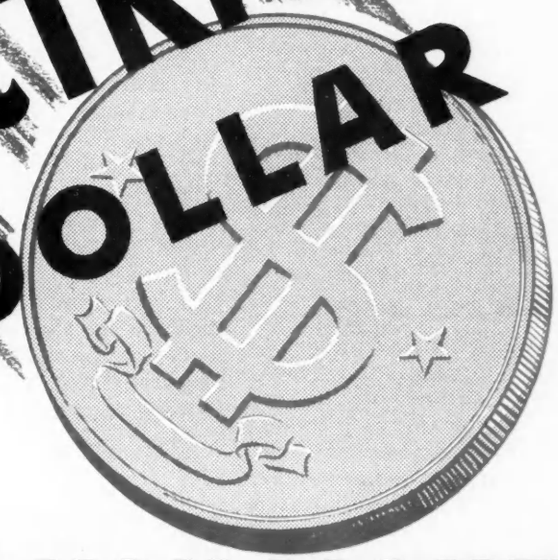
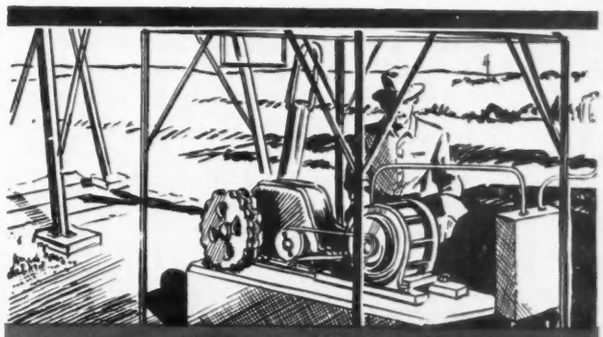
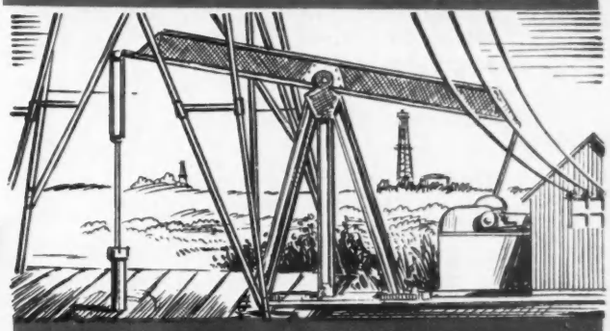




LOW INSTALLATION COST



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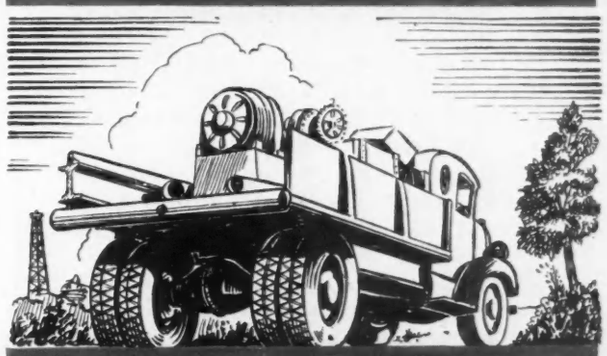

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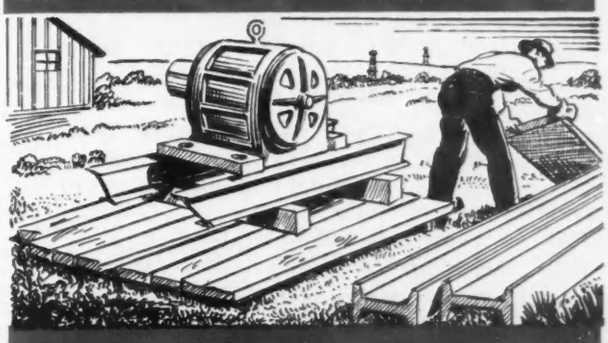

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intermittent repressuring in any particular sand.

If intermittent repressuring is practiced, the proper time interval will depend upon the length of time necessary to pressure up the sand volume between pressure and producing wells. This in turn depends upon permeability and permeability distribution as well as on the area involved and would, therefore, necessarily be determined by trial.

Question 7. Would not the spacing of wells have some bearing on the above problems?

Yes. The question of area has been discussed in the previous answer.

Question 8. If gas is more soluble in oil than is air, how would the two fluids compare both in straight time repressuring and in alternating time? Would gas effect a greater production in both instances?

Gas dissolves fairly easily in oil as compared with air. When gas goes into solution the viscosity and the tackiness of the oil decreases. The result is that the oil flows with less effort and does not stick to the sand to so great an extent. If the gas dissolves in the oil where the pressure is high, some of it will come out of solution in the low pressure region near the producing well. This froth forming in the producing sand has two opposite tendencies, one to assist in pushing the oil it displaces into the well, the other to act as a plugging agent and make it more difficult for the flow pressure to push the rest of the gas and oil into the well.

When air drags the oil, gas and gasoline are removed and the oil gets heavier. In addition, the air to some extent oxidizes the oil, forming acids which further increases its viscosity and makes it somewhat more difficult to move. In some areas this oxidation has reached a point where refining of the crude has become more difficult.

Value of Recycling

In the long run, therefore, gas seems to be definitely preferable to air, and should be used whereever possible. There are occasions where it is worth buying gas rather than depending on air. By all means recycling should be resorted to as soon as possible, and to the greatest extent possible in every repressuring operation. This means that all available air-gas from casing heads should be returned to the sand. This idea should not, however, be carried to the point where casing head pressures are reduced below an experimentally determined best operating value, and never to a considerable vacuum.

The operators who having insufficient air-gas, use two compressors, one on air and one on air-gas, or who operate as long each day on air-gas as possible and then change to air, are to be commended. In this latter case, however, the change-over must be made carefully, as at some instant during each change-over an explosive mixture is present, and must be treated with respect.

Hold Air Content Down

In every case where air-gas is used for recycling or as a fuel, periodic determinations of its air content are important, as it is necessary to keep this value well below the explosive point. Good practice demands that the air content should rarely be permitted to exceed 50 percent to 60 percent, and never to exceed 75 percent.

In intermittent operation gas should have the additional advantage of periodically going into and out of solution and in this way hurrying things along.

Question 9. What volume per foot of pay has been found to be most effective in repressuring a sand, knowing the permeability, porosity and saturation of the sand?

There is no specific answer to this question. Further, no one knows just how much air is going into any one foot in a pressure well, unless he has two packers one foot apart. This is because of the continuously varying permeability, generally both vertically and horizontally, and on account of localized bedding conditions. These conditions greatly affect the distribution of input of air along the sand face, possibly around the hole as well as vertically.

Where the sand is well saturated and much of the air is pushing oil, less air will be required-and-taken than when much of the air is dragging oil. High porosity merely means that more air will be held in the sand, most of it just so long as pressure is applied; 25 feet of pay sand of 20 percent porosity may hold 700,000 or more feet of free air per acre with 100 pounds intake pressure when the sand is 50 percent saturated. This amount of air must go in in addition to the amount doing work.

Permeability Affects Necessary Pressure

The permeability affects the pressure necessary rather than the volume directly. Of course, a tight sand requires more pressure and results in more feet of air being squeezed into a given space.

In view of all this, and since a pressure well must start at some volume, 500 to 1000 feet average per foot of pay seems as good a place to attempt to start as any. Future adjustments can then be made as indicated by results.

Question 10. Comparing straight time repressuring with alternating time, what should be the relation between the volumes of air or gas injected?

This has been discussed previously. If less net air is used (air in minus air out) there will be less propulsive force, therefore slower recovery, except as mentioned before where otherwise inaccessible oil may be produced.

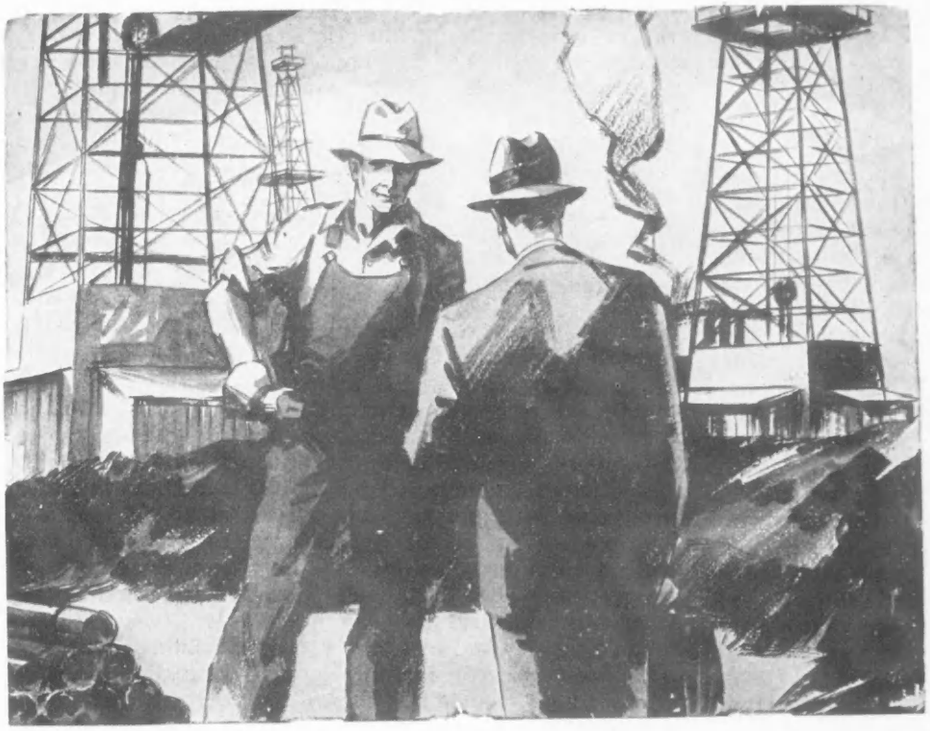
Question 11. If, for instance, we are obtaining results by injecting 1000 cubic feet of fluid per 24 hours per foot of pay on straight time repressuring and then decide to change to a system of alternation or injecting the fluid, every other 12 hour period, should we double our injection volumes for these 12 hour periods?

Considering the previous arguments I would try to start out on that basis and be guided in the future by what happened.

Question 12. Should working barrels be raised, and if so, why?

Working barrels are raised to cover the sand face and in this way to prevent paraffining, or to develop a liquid back pressure on the sand. In this latter case we are at the moment interested.

Air and oil move through the sand by virtue of a pressure differential, the key well pressure minus the producing well pressure at the sand face. The greater this differential, the faster the air moves through, so will oil, up to a certain point. With a constant key well pressure, the development of a back pressure will reduce this differential by that amount, and in this way reduce propulsive force. If the key well pressure is increased by the same amount as the back pressure, no change will



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result in this manner, except as more air is required to fill the unoccupied space, and as more air and gas go into solution.

Action of "Froth"

Another effect, however, does take place. Where there is no back pressure, as mentioned before, gas and possibly air come out of solution from the oil in the sand near the producing well. This "froth" will try to shove the oil ahead of it into the producing well in order to find space to exist. In this way it will aid in getting the oil where we want it. On the other hand, it will tend to act as a plugging agent, as it is more difficult to move a series of bubbles through sand than a solid stream of oil, and, therefore, a greater pressure is required. In this respect a back pressure by holding more gas in solution in the oil in the sand will aid production.

Which of these conditions will dominate in any particular sand and operating condition can be determined only by careful trial. In some sands back pressure helps. In others it hinders. Obviously, where vacuum is used, which we do not recommend except possibly for defending the property lines, the working barrel cannot be raised.

Question 13. What is the maximum economic spacing of wells and what limits it?

This question is important, as the well spacing has a lot to do with development cost. It is obvious that as spacing increases, pressure must also increase, not in proportion, but still it must increase to produce the same current effect. When pressures are increased about 500 pounds, operating difficulties, dangers and expenses multiply rapidly. A 500-pound air or gas line lying on the ground is nothing to monkey with.

Avoid Blind Alleys

Aside from this, the spacing of wells, not yet drilled, is limited principally by pocketing of the oil due to sand irregularities. If wells are too close together, the chances of channeling increase, but if they are too far apart, the chances of driving large quantities of oil into blind alleys are also great. Except where permeabilities are low, and require pressures correspondingly high, this latter consideration becomes a dominant factor where the wells are yet to be drilled, to be determined again principally on local sand conditions. Where rather close drilling has already been completed, and the economics of the situation cannot justify plugging and redrilling, the best must be made of the situation as it is, and if practical, existing wells selected for pressure wells, or some new ones drilled on this basis.

More Pressure Wells Better

In any event, except as property lines or pool edges interfere, ordinarily there should be approximately not more than two producing wells for each pressure well. This works excellently into a four spot pattern. Some recommend one producing well per pressure well. The reasons for so many pressure wells are definite. A study of many properties where key well locations have apparently been made on a "by guess and by gosh" method, there are considerable areas where by no chance can the oil be driven into producing wells. These areas are dead, and they might as well be in Egypt. Again, with fewer producing wells for each pressure well it is not necessary to force so much air into each well, pressure can be kept lower, costs lower, and chances of channeling less.

This does not necessarily mean more wells on a 100 acre tract. It more likely means fewer producing wells and more key wells. Fewer and better producing wells, let us say, as these fewer wells will produce more oil, produce it cheaper, and the recovery per acre will be greater, perhaps at less expense.

No Set Spacing Best

There can be, therefore, no single best spacing distance for all sands. In general for air and gas repressuring best judgment will ordinarily specify a distance of from 300 feet to 450 feet from pressure well to producing well, but specific cases will occur where it may be necessary to reduce this distance below 300 feet, or permissible to extend it beyond 450 feet.

Question 14. Does the permeability as measured in the laboratory give us a true value of the conductivity of the sand in place?

No. It gives us good relative values at that point, and when tests from a number of wells are available, it gives us a working idea of how the sand varies. To be of the greatest use permeability values must be considered in the light of much operating experience.

The actual effective permeability in any sand is very greatly affected by the presence of oil, water and bubbles. As these vary greatly in amount from point to point, and from day to day, so will the effective permeability vary, and we cannot know what it is. In spite of this, the permeability as measured is a most valuable working tool in the analysis, development and operation of a repressuring project.

Question 15. If, in coring a well in vacuum territory, the vacuum pulls all the drilling water into the sand, and in addition air at the rate of 40,000 feet a day, is it possible to get a fair sample for a saturation test?

It would not seem possible under these conditions to do so.

Subsequent Note. The discussion above has been largely concerned with the details of repressuring. These and many more are exceedingly important if best results are to be obtained. It does not seem possible, however, to put enough emphasis on a properly coordinated complete whole if the operation is to be carried to its completion with greatest possible returns.

Cores, laboratory logs, and gauges are interesting, but utterly worthless unless they are put to work, and they are able and willing to do heavy duty if given a chance. They are worse than useless if incompetently handled. A flow gauge reading taken at a key well will not be correct if at the moment the line pressure is dropping, and may be worse than no reading at all. The reading of an open flow gauge will vary, depending on the amount of oil over the sand, the time allowed for it to reach a steady state, when the well was last pumped, and on other conditions, and all this must be taken into consideration.

If best results are to be obtained on any repressuring project, it seems worth repeating, too much emphasis cannot be placed on care, thoroughness and competence in planning the project, the actual repressuring development of the lease, and finally the continuous observation of the movements of air, gas and oil and prompt applications of corrective measures as they appear. If this idea is carried through consistently the greatest possible returns will be the reward.

Bradford Water Flooding Principles

MUCH VALUE MAY BE PROCURED BY REVIEWING BASIC OPERATIONS

By JOHN C. ALBRIGHT

PART 1

Preparatory Work

A REVIEW of water flooding history and practices at Bradford, Pennsylvania, the first field to use this method, is of interest in view of present attention and study being devoted by Mid-Continent operators to the possibilities of applying water floods successfully to stripper properties in Oklahoma, Kansas and Texas. An investigation of the progress of water flooding at Bradford reveals several pertinent necessities and conclusions.

Bradford Results Satisfactory

The Bradford district's area is approximately 80,000 acres, in which about 25,000 wells were drilled during the original development period. The sand is found at varying depths, controlled primarily by surface elevations, however, it will average between 1700 and 2000 feet in depth. The origin of the sand is believed to have been formed by a large delta laid down ages ago. It was covered by limestones and later raised into the shape of a dome. The sand body has a uniform consistency throughout the greater portion of the field, which is shaped like a pair of pants. There are two "legs" that converge into a larger body. Deposited as it was by washed in sand grains, there is a definite boundary to the producing horizon. It terminates at the "waistband," "seams" and "cuffs" of the "pants." It is said that outside this definitely proved area, no other field has been found that yields exactly the same quality oil.

That water flooding has been successful in this area is shown by a study of its production curve. It is estimated that from 1871 to the present time the field has produced in excess of 350,000,000 barrels of oil. Engineers estimate that another 200,000,000 barrels remain to be recovered by secondary methods, which at Bradford means water flooding. That the field may yield this estimated 200,000,000 barrels of recoverable crude still in the sand does not seem out of line when the yearly production curve of the field is considered. In 1922, production at Bradford had declined to 1,704,925 barrels, or 4,670 barrels daily. Since that time, due to water flooding, its output has increased remarkably. By 1927 it was producing 14,000 barrels per day. During 1935 Bradford produced 13,182,435 barrels, or 36,119 barrels per day. The latter figure represents an increase of 31,449 barrels in its daily production over that of 1922.

One company that has maintained a complete record of its water flood costs at Bradford shows that a property having a sand depth of 1700 feet will require $2,880.62 per acre. Where the sand is 2000 feet deep the cost runs slightly higher, averaging $3,164.19 per acre. These figures include coring, redrilling, setting an average of 320 feet of surface pipe, equipping wells with tubing and erecting pumping powers. The costs are computed on a conventional five-spot pattern that has water well centers averaging 319 feet apart. From these figures it can be seen readily that the increased production has repaid operating and installation costs, where any sizeable growth in recovery was obtained.

Conditions at Bradford, notwithstanding the depth of the sand, are quite favorable for reconditioning and redrilling work. Rocks that stand up without casing are encountered almost from the top of the ground down to the producing formation. This permits the use of a minimum amount of casing, and the cost of properly equipping a flood obviously is much lower than if the formations were such to require several strings of casing. Where floods are contemplated in other areas, conditions will invariably be different and cognizance should be taken of the various factors that may govern the cost of equipping the leases.

Research Work Continues

While it is known without question that water flooding at Bradford has been highly successful, both from the standpoint of recovering additional oil and in the revenue returned, the full possibilities of this secondary recovery method are not yet known. Much progress has been made by engineers in applying floods, particularly in the past few years, and the end is not yet in sight. Experiments continue to be conducted and advancements are forthcoming constantly.

In order to obtain a greater recovery of the residual oil from the sands at Bradford, some companies, South Penn Oil Company and others, recently have started new floods by introducing a varying amount of natural gas into the input wells before water is injected. No property so operated has advanced through the flood period sufficiently to determine whether the practice will be the means of additional recovery, or a hindrance to

future production. It remains to be seen if the advance injected gas will cause a Jamin effect to be established, or if it will go into solution with the oil. If it is the means of lowering the viscosity of the oil, it is possible that more of the residual oil may be driven from the sand pores. However, if blocking is established, it will be a decided disadvantage. Proponents of this type of production practice are heartily in favor of it, even with the high price of purchased gas in the Bradford district, and are continuing to inject gas into input wells ahead of flood waters.

In endeavors to obtain a greater amount of the residual oil from the sands being water flooded, State College of Pennsylvania and individual companies are maintaining research departments to determine what chemical, or combinations of chemicals, may be used either with the flood water or ahead of it. The theory is that some chemical may be found that will loosen the oil from the sand grains. If and when the search is rewarded, a larger amount of oil may be brought to the surface than that produced with straight water flooding.

Flooding Started in 1922

It was sometime around 1922, when production fell to the lowest figure in Bradford's history (1,704,925 barrels annually), that water flooding was begun. No one seems to know the exact date, or if it was by accident or intentional dislocation of casing to allow infiltration of surface water into the wells. Regardless of the conditions surrounding the first water flood, the method was found beneficial to certain leases in that increased production resulted, and far-sighted oil men began to investigate the possibilities. In many instances they were able to purchase desirable properties at salvage prices. At the time many wells were producing less than a barrel of oil per day, and it was hard work to maintain leases on the income received from such small quantities of crude.

With no precedent to guide the producers in the Bradford field, water flooding was gradually worked out so a maximum amount of oil could be obtained with a minimum amount of investment and time. Fortunately, many factors naturally favoring water flooding operations were in existence at Bradford.

The concensus of opinion among experienced engineers today is that many factors must be considered before attempting to place any property under flood, however, the most important are:

Four Important Factors

1. A reasonable amount of residual oil in place.
2. Uniform sand body, both laterally and vertically.
3. Suitable permeability.
4. Water of good quality in adequate quantities.

These four factors did and still do exist in the Bradford area. The oil content, in some portions, runs as high as 20,000 barrels per acre. The sand is quite uniform, both vertically and laterally, although having numerous flat, longitudinal shale streaks at intervals. The permeability is such that water is prevented from coning when pumped into the sand body, and average between 4 and 6 millidarcy's. Water may be obtained almost anywhere in the area, especially along the many creeks, and also from sandy beds found not far beneath the ground surface.

Advance Inspection Essential

When intentional water flooding was first begun in the field, wells were drilled upon almost any property that had been producing oil. Little attention, naturally, was given to the oil saturation, the permeability, the porosity or the uniformity of the sand body. As experience was accumulated it was observed that certain properties were yielding larger returns than others being flooded. Coring then was started in order to procure samples of the sand through the vertical section. The samples were inspected by various methods, but with the thought of determining what conditions were most favorable. This was the start of the efficient laboratories for this work that we know today and recognize as vital to water flooding. Facilities were increased rapidly in the laboratories and the technique improved to the extent that a property now may be inspected thoroughly and quickly.

This operation also was the starting point for the practice today of coring all properties. Various methods are in use in the Bradford district for the disposition and handling of cores as they are removed from the well. A few inspectors quickly select samples at intervals and place them in common glass fruit jars, sealed upon becoming full so that the air cannot disintegrate or otherwise affect the core. Some companies wash the cores thoroughly to remove the drilling mud, while others believe that more exact information may be obtained by sealing the sample as it comes from the core barrel. Companies who select samples from the core at definite and regular intervals for sealing, place the remainder of the core in sheet metal core cases, filling the voids where the selected were removed with wooden blocks, which are numbered and given the exact depth they represent. These numbers correspond with tags on the sealed samples, so that when the core arrives at the laboratory a complete analysis may be made.

Petroleum Reclamation Corporation and others start taking cores at least five feet above the point where the sand is expected to be penetrated. This method is followed to determine the condition of the caprock and to find if any thief sands may be lying above the main body.

Must Study Sand Breaks

Shale partings within the body of the sand are generally accepted as giving no particular trouble in developing a water flood, provided they were originally laid down on a horizontal plane. Numerous shale partings are encountered in each well cored at Bradford, some so thin they will not be noticed except upon minute investigation, but however thin, if regular, water will not pass through. Sections of the Bradford sand on either side of a shale parting may show different characteristics as to permeability and oil content. It sometimes happens, when coring a well, that a strata of the sand in the bottom of the hole will show a very small amount of residual oil in place but will take water readily and rob the more prolific sections above. Plugging of the bottom section is resorted to in order to force the water to the sand showing the most oil per acre. In order to determine if shale partings have been detrimental to floods, Forest Oil Corporation has drilled numerous test holes in various sections of flood patterns, only to find that cores removed at one place show approximately the same saturation as those removed from other parts of the pattern.

Upon completing the inspection of the property and it is decided conditions are favorable for flooding, the usual procedure is to start drilling input wells and general reconditioning work. These operations, as they are employed at Bradford, will be explained in Part 2 of this series, which will be published in an early issue.

MEN IN THE INDUSTRY'S NEWS

J. D. SANFORD, manager of West Texas operations of Monday Oil Company, St. Louis, Mo., has transferred headquarters from Kermit to Fort Worth, where an office has been established in the Trinity Life building. The company recently completed a 16-well drilling program in the Kermit field.

DR. M. M. LEIGHTON, Urbana, Illinois State Geological Survey, last week toured the Clay and Wayne County fields, center of Illinois activity at the present time.

J. E. HUPP, operator in the Cut Bank field of Montana, inspected the Turner Valley field of Alberta, Canada, last week. He expressed the opinion held by many that operators of both areas should cooperate in pipe line construction to furnish a market for crude produced in Alberta and Montana fields.

T. E. PATRICK, for the past year assistant superintendent of Gulf Oil Corporation's properties at Daisetta, Texas, has gone to Kuwait, between Arabia, Iraq and the Persian Gulf, where he will be superintendent of the drilling activities of the company owned jointly by Gulf Oil Corporation and Anglo-Iranian Oil Company.

MAURICE TEIS, chief geologist for E. H. Moore, Inc., with others of the firm, made a short plane visit to California operations to go over prospects of a new location. Teis is now making his headquarters in Tulsa, there recently from the company's Fitts field plant.

LEON FOSTER, formerly with the geological department of Gulf Oil Corporation, is now watching southern Oklahoma for Pure Oil Company.

GEORGE M. VANDEVEER, JR., engineer with E. H. Moore, Inc., Tulsa, returned from a vacation in Wyoming.

DAN NUFER, independent geologist of Tulsa who has been engaged in working out structural conditions in the new Illinois area, is returning to the latter sector after a brief trip to Tulsa.

O. W. SELVIDGE, secretary to J. W. Bradbury, general agent of Mexican Gulf Oil Company, Tampico, Mexico, has returned to his duties, after having undergone an operation for appendicitis July 7.

T. A. TONG, independent operator of Maracaibo, Venezuela, is spending a vacation in the United States, accompanied by Mrs. Tong.

R. C. POWLESS, geological department, Tide Water Associated Oil Company, Tulsa, has been visiting in Houston, accompanied by his family.

FRANK WILLIBRAND, formerly superintendent at Oklahoma City for Phillips Petroleum Company, has been transferred to Ada, Oklahoma, and put in charge of the company's eastern Oklahoma wildcat tests.

Heads Cooperative Exhibit

THOMAS H. TAYLOR

THOMAS H. TAYLOR, of New York, president of the newly-organized The Petroleum Industry Exhibition Incorporated, which will develop a cooperative petroleum industry exhibit for the New York World's Fair in 1939, entered the petroleum industry as a lubricating trade record clerk in the employ of Standard Oil Company of Kentucky at New Orleans, Louisiana, in 1901. In 1903, he was made assistant manager of the lubrication department at Cincinnati, and three years later became assistant manager of the eastern lubrication department of Standard Oil Company of Indiana.

In 1910, Taylor returned to New Orleans as sales assistant to the vice president of Standard Oil Company of Louisiana, where he successively occupied the positions of sales manager, general sales manager, director, and director co-ordinating sales. In 1934, he became manager of the New England division of Colonial-Beacon. Recently, he moved to New York to become assistant to the president of Standard Oil Company of New Jersey.

The exhibit is not the first petroleum industry cooperative project Taylor has been connected with. During the floods in the Ohio and Mississippi river valleys, he was loaned to the Red Cross and from headquarters in Washington, D. C., coordinated the distribution of petroleum products to prevent shortages in the flood region.

TENNILLE HENDERSON, civil engineer with Mexican Gulf Oil Company at Tampico, Mexico, is spending a vacation with his family in San Antonio, Texas.

G. D. THOMAS, geologist for Shell Petroleum Corporation at Shreveport, is spending his vacation in Colorado.

R. B. MORRISON of New York, vice president and general manager of California-Texas Oil Company, Ltd., recently returned from visiting the company's properties on Bahrein Island and on the Arabian mainland.

ROBERT HARCUS, for a number of years field superintendent for Assam Oil Company at Digboi in Upper Assam, will sail in October for Yenangyaung, one of the better known fields of India. Mrs. Harcus and their daughter are with him in the states.

JOE F. ORR, Fort Worth attorney, will assume charge of a district office that is being opened by the W. L. McClanahan interests at Shreveport, Louisiana, in an expansion program along the Rodessa trend in Arkansas, Louisiana, and Texas. Orr will become counsel and manager.

KIRK WALKER, Skelly Oil Company, has been transferred from Enid, Oklahoma, to Illinois.

L. T. BARROWS, manager of the production department of The Texas Company, and J. E. Bermingham, head of the Gulf Coast producing division of the company, last week were inspecting properties of the company in Southwest Texas.

HARVEY WELLS, Panhandle Eastern Pipe Line Company, is stationed at the Liberal Compressor plant, and Miss Beatrice Milliken, daughter of Mr. and Mrs. O. A. Milliken of the same firm at Houstonia, Missouri, were married last week. Residence will be at Liberal.

JOHN B. MEHERIN, field superintendent for British Burmah Petroleum Company, Ltd., now on vacation in the United States, will return to India in the fall.

E. S. SPENCER, assistant chief engineer of Texas Pipe Line Company, Tulsa, is in State College, Pennsylvania, attending the meeting of the American Society of Mechanical Engineers.

R. C. HOPPER, Tulsa office of Skelly Oil Company, recently returned from a short visit to operations in the vicinity of Fitts pool, Pontotoc County.

H. G. EDMONDS, director of transportation of Caribbean Petroleum Company, Maracaibo, Venezuela, recently visited California to buy an airplane.

C. E. BUCHNER of Tulsa, with the Independent Petroleum Association of America, was in Houston last week to make plans for the association's annual convention, which will be held in Houston from October 14 to 16.

A. W. SIMMONS, drilling superintendent for Sabalo Transportation Company, Tampico, Mexico, is vacationing in the states.

MARRS McLEAN, independent operator of Beaumont, Texas, and Mrs. McLean last week donated $50,000 to the new physical education plant to be erected at Baylor University, Waco, Texas.

C. B. MILLER, superintendent of warehouses for Mene Grande Oil Company, Maracaibo, Venezuela, is in New Hampshire. He is accompanied by Mrs. Miller.

JOHN DEERING, independent operator of Houston, is spending his vacation at Santa Fe and other points in New Mexico.

J. W. SELBY, chief scout for Shell Petroleum Corporation at Houston, took precautions against his vacation being disturbed by leaving no word of where he would spend it.

C. MacKINNON, superintendent of stores for British Controlled Oilfields, Ltd., South America, is in Scotland on vacation.

FAY BISHOP, assistant drilling superintendent for Burmah Oil Company, Ltd., Burma, is visiting in the United States.

C. H. SNELSON, district clerk of Skelly Oil Company at Houston, is spending his vacation in North Texas.

A. H. ROWAN of Fort Worth, head of Rowan Drilling Company, last week was doing duty in the company's Houston office, to permit a California vacation for Charlie Rowan. Meanwhile, the former was looking forward to a wild game hunt in Wyoming in September.

PAUL G. BENEDUM, of the Benedum and Trees interests, is in Colorado Springs for a vacation.

J. F. TURBIE, Lobitos Oilfields, Ltd., arrived in Los Angeles August 15 from Peru, where his company is one of the leading operators.

H. L. LAMAR, drilling department of Trinidad Leaseholds, Ltd., Trinidad, accompanied by Mrs. Lamar, is visiting on the West Coast.

B. B. McBRIDE, office manager for Russ Petroleum Company, Dallas, is spending his vacation at a mountain resort in northern New Mexico.

WALTON L. GOLDSTON, Houston independent, is among the numerous oil men that are spending their vacation in Alaska this month.

TOM DAVEY, of San Antonio, has been made general manager and Texas agent for the Philsan Oil Company, offices in the Milam Buillding. The concern is now carrying on drilling operations in the McCampbell field. Davey was with Atlantic Refining Company, later Buckingham Oil Company at Corpus Christi, then returned to San Antonio to form Davey and Company.

GEORGE RELF, formerly with Ohio Oil Company in San Antonio, has accepted a position with Gulf Oil Corporation, and is in Venezuela, South America. He has been replaced by Victor Hall.

C. V. BOB has resigned as vice president and general manager and has severed his connections with Buckingham Oil Company and Eleanor Oil Company, of Corpus Christi. F. R. Peterson has been elected to replace Bob. D. P. Neill, formerly with Danray Oil Company, will act as production superintendent for the two concerns. Regan Tucker will remain as geologist, while E. O. Goodson will continue as comptroller. No other changes have been made in personnel.

J. J. FROMMER

formerly superintendent for the Ohio Oil Company at Oklahoma City, has been made general superintendent of company operations in all Texas districts, except East Texas. He will maintain headquarters at Houston, where the concern has opened offices recently.

DIED:

R. R. (Bob) McGUIRE, general manager of Honolulu Oil Corporation in California, died suddenly August 8. Burial took place at Santa Barbara. He was a member of the Central Committee of California Oil Producers and also chairman of the Buena Vista-Elk Hills field committee.

C. L. WATERBURY, 50, member of the East Texas Tender Board maintained by Federal Petroleum Agency No. 1, died August 16 at a Tyler hospital from peritonitis resulting from an appendectomy earlier in the month. He had been a member of the board since October, 1935, and previously had engaged in the oil business in Texas and Oklahoma.

JOHN M. ALDEN, supervisor of oil and gas operations, United States Geological Survey, died Monday, August 16, 1937, at his residence, 1619 South Delaware Place, Tulsa, Oklahoma. He is survived by his widow; a daughter, Miss Roberta P. Alden, a teacher in Chelsea High School: a son, George, a sophomore at Tulsa University; and another daughter, Jean, a sophomore at Central High School, Tulsa. Alden was born May 10, 1888, at Monroeton, Pennsylvania. As a young man he was in business with his father as a civil engineer, and from this training advanced to the position of resident engineer during construction of Coal and Coke Railroad in West Virginia. After following the engineering profession in various capacities, for 11 years with Hope Natural Gas Company and later with Standard Oil Company of New Jersey, he entered government service in 1921 at Denver, working in the area for four years. He served in Taft, California six years as deputy supervisor of oil and gas on the Pacific Coast states. In 1930 he was appointed Mid-Continent supervisor of oil and gas operations, and had offices in Muskogee which were moved to Tulsa in 1932. Alden supervised operations for oil and gas on Public and Restricted Indian Lands in Oklahoma, Kansas, New Mexico, Arkansas, Louisiana, Mississippi, Alabama and Texas.

G. O. COZART, 60, president of Gratex Refining Company and civic leader of Graham, Texas, where he had resided for the past decade, died August 15 in a Fort Worth hospital after being ill about three weeks.

DONALD ALEXANDER MacDONALD, 59, Alberta oil operator and formerly engaged in oil development in Wyoming and Montana, died in a Vancouver hotel August 11 while on a business trip to the coast. He came to Calgary in 1924 and had been active in organization of Big Chief Company, Regent Oil Company, Mid-Continent Oil Company and Comrey Oil Company, Ltd. He headed the last named company at the time of his death. Surviving are his wife, four sons, a daughter, a brother and a sister.

JOHN L. PORTER, 70, Pittsburgh, associated with the Fisher Oil Company and the Enlow Oil Company and active in Pennsylvania oil development, died August 11 in a sanitarium at Clifton Springs, New York, following an operation. He had been in ill health for some time. Porter had made his headquarters in Oil City for many years. He was with the Anglo-American Oil Company in London for two years and later become associated with the late Henry Fisher in Pittsburgh. Surviving are his wife, a sister, two nephews and a niece.

J. W. McKEWON, vice president in charge of sales for O. C. S. Manufacturing Company, died in Tulsa, after an emergency operation for appendicitis. McKewon was born in Old Trimdon, County of Durham, England, and came to this country in 1912 where he found employment in the Tri-State coal field area. Later coming to Tulsa he became affiliated with the petroleum industry and entered the employ of O.C.S. in January, 1926. McKewon is survived by his widow, Bessie Ray and three sons, Jack, Tom and Dick, all of Tulsa, and by his father, T. W. McKewon, Coffeyville, Kansas.

C. B. FARMER, bookkeeper for Stanolind Oil & Gas Company, Tulsa, died at a Tulsa hospital following an operation for appendicitis. He is survived by a widow and a daughter at home, and by his parents, residing at Carthage, Missouri.

J. C. ALLEN, an employe of Foster Oil Company of Nowata, Oklahoma, died of injuries received when a length of two-inch pipe swinging from a derrick on which he was working struck him in the head. Allen's home was at Hominy.

BENJAMIN PORTER BROWN, 70, prominent Pennsylvania oil producer, died recently at Bradford following an illness of eight weeks. Surviving are his wife, two sons, a sister and a brother.

Outlook Favorable

STRICTER CRUDE CONTROL EXPECTED FOR SEPTEMBER

THE oil industry's markets continue generally firm, with prices mostly unchanged; as the outlook appears hopeful, while latest available statistics on the industry's operations are encouraging.

The Bureau of Mines forecast of market requirements for crude oil and gasoline in September indicates a continuation of the comparatively large demand that has been prevailing. Volumes of business for oil companies thus promise to remain large.

Furthermore, it has been indicated that there will be relatively strict control of crude production in September, and a better balancing of supply with existing demand.

The prospect of better balancing of production with demand naturally is encouraging and it is being reflected in the markets by increased confidence.

Demand Above Year Ago

The Bureau of Mines forecast that 3,509,300 barrels of crude oil will be required daily in September indicates an increase of 9 percent over the actual demand in September last year. The bureau's estimate that gasoline requirements for September will amount to 48,700,000 barrels indicates a gain of 10 percent above the actual demand in September last year.

These forecasts of requirements indicate that September will show about the same improvement over last year as the earlier part of the year. In the first six months of the year total petroleum demand was about 11 percent greater than in the similar period last year, and domestic gasoline demand was up a little over 10 percent.

Crude Stocks Lower

So far, figures are not available to show the fluctuations of crude oil stocks beyond August 7, and there is not yet any definite evidence of addition to the nation's crude stocks in August. But pertinent information, including figures on the August allowables of the leading producing states, has led to the general expectation that August will bring a substantial increase in the crude stocks.

Such expectation has tended to promote unsteadiness in the markets, and it was not until assurance came of stricter allowables in September that confidence was restored.

In the week ended August 7 the country's crude oil stocks declined 328,000 barrels, to 307,922,000 barrels. But they remained a little higher than one year previously, the total on hand August 8, 1936, having been 305,315,000 barrels. This limited increase over a year ago obviously does not in itself constitute cause for alarm, in view of the fact petroleum demand is running around 10 percent higher this year than last year.

Gasoline Stocks Down

Gasoline stocks, similarly, are largely justified by market conditions. In the week ended August 14, the gasoline inventories were reduced another 129,000 barrels, declining to 69,087,000 barrels. At that level they were about 11 percent higher than one year ago. But as indicated above, the demand is running about that much higher this year than last year.

The reduction of the gasoline stocks in the week of August 14 occurred in the face of a continuation of refinery operations near the all-time peak proportions reached in the week ended July 31. In the August 14 week crude runs to stills averaged 3,340,000 barrels daily, or only 85,000 barrels a day less than the recent peak.

Fuel Stocks Up

In anticipation of heavy demand this fall and winter, the industry continues to build up its inventories of fuel oil. The total stocks of gas oil and fuel increased about a million barrels in the week ended August 14, rising to 109,664,000 barrels. They still were lower, however, than a year ago, by approximately one million barrels, despite the fact that the demand for these oils is running substantially higher this year than last year.

Mid-Continent Prices

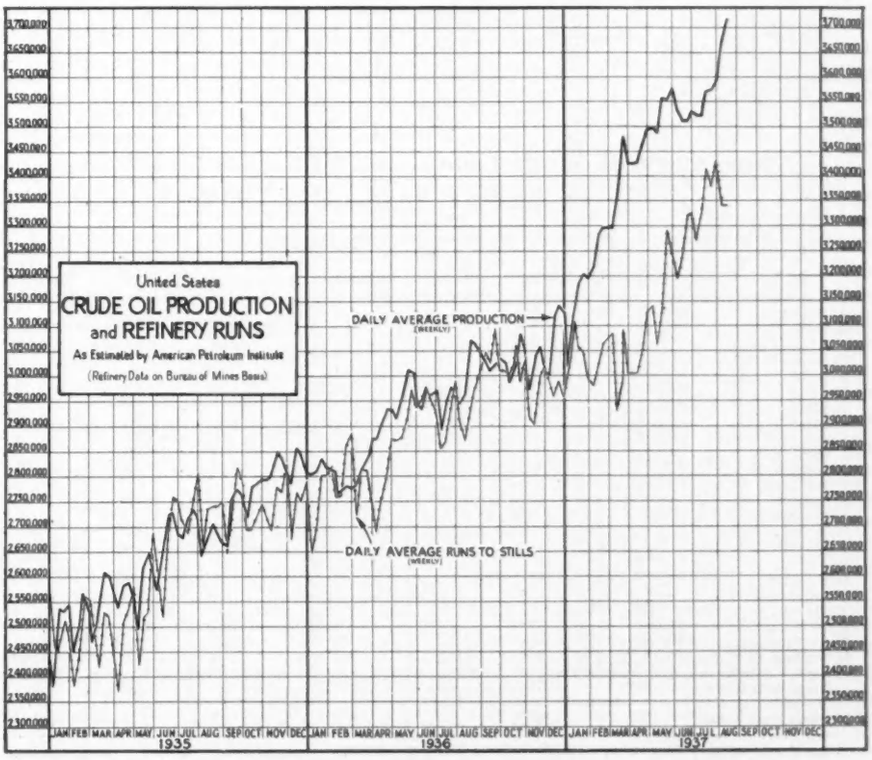
Tank car prices at Mid-Continent refineries late last week were largely the same as for the preceding several weeks.

U. S. motor gasoline continued to range in the Oklahoma market about as follows: 62 octane and below, 5 to 5¼ cents a gallon; 63 to 67 octane, 5⅜ to 5¾ cents; and 68 to 70 octane, 6 to 6⅛ cents.

Corresponding prices in the Chicago market were: 4¾ to 5 cents, 5¼ to 5⅝ cents, and 5⅝ to 6 cents.

At East Texas refineries the most common product, 60-62, 400 end point gasoline, ranged from 5⅛ to 5¼ cents a gallon.

Kerosene prices f.o.b. Oklahoma refineries ranged from 4 to 4¼ cents a gallon for the 41-43 water white grade, and from 4¼ to 4⅜ cents for the 42-44 water white grade. Corresponding prices in the Chicago market were: 4 to 4⅛ cents and 4 to 4⅜ cents.



Tax collections reflect record demand for oils

Washington, D. C.—Reflecting the nation's record-breaking demand for petroleum products, collections from the federal oil taxes in July reached new high levels, it was disclosed by the Internal Revenue Bureau August 20.

Collections from gasoline tax jumped nearly $2,000,000 to a total of $19,471,055 from $17,561,468 in June and $14,512,178 in July of last year. Receipts for the first seven months of the year were $109,500,633 against $94,550,940 in the corresponding period of 1936.

Lubricating oil tax collections also reached a record at $4,371,623 against $2,950,212 in June and $2,311,106 in July a year ago, bringing the total for the seven months to $20,220,619, against $15,682,647.

CRUDE OIL PRICES

Complete tables of prices paid for crude oil at the well in principal fields will be found on page 50, August 2 issue. Hereafter this schedule will appear only in the first issue of each month.

Collections from pipe line transportation passed the million dollar mark to a total of $1,106,461, against $960,554 the preceding month and $866,406 in the corresponding month last year, to make the seven months' total $6,966,174 against $5,906,632.

Receipts from the processing taxes increased to $84,695 against $82,210 in June and $71,482 in July, 1936. The total for the first seven months of the year was $540,852 against $493,215 a year ago.

Trends of United States Production and Stocks

(Figures: American Petroleum Institute, except Crude Stocks, Bureau of Mines)

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	Gas & Fuel Oil Stocks (Barrels)
January 2, 1937	3,121,400	3,030,000	287,659,000	62,661,000	106,330,000
January 30	3,194,050	2,995,000	285,384,000	69,540,000	102,078,000
February 27	3,296,100	3,085,000	288,121,000	78,786,000	99,534,000
March 27	3,431,300	3,060,000	293,587,000	*83,538,000	96,591,000
April 24	3,496,400	3,125,000	300,737,000	82,303,000	94,100,000
May 1	3,497,450	3,140,000	303,249,000	81,407,000	94,291,000
May 29	3,573,000	3,245,000	306,445,000	78,758,000	96,139,000
June 26	3,529,600	3,235,000	307,679,000	75,427,000	100,395,000
July 3	3,525,650	3,270,000	308,744,000	75,330,000	101,564,000
July 10	3,520,750	3,325,000	307,255,000	73,976,000	103,537,000
July 17	3,557,950	3,415,000	307,139,000	72,546,000	105,085,000
July 24	3,576,400	3,380,000	307,551,000	72,020,000	106,260,000
July 31	3,591,900	*3,425,000	308,250,000	70,872,000	108,209,000
August 7	3,651,150	3,340,000	307,922,000	69,216,000	108,597,000
August 14,1937	*3,718,600	3,340,000	.....	69,087,000	109,664,000
August 15, 1936	3,070,400	2,925,000	304,938,000	61,953,000	110,795,000

*All time peak.

Summary of Wells Completed in the United States Week Ending August 21, 1937

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total 1937	Total this Date 1936
Alabama	....	....	....	....	.....	1	2
Arkansas	4	3	....	1	964	63	66
California	22	20	....	2	7,710	903	704
Colorado	....	....	....	....	.....	6	7
Florida	1	....	....	1	.....	1	2
Illinois	17	12	....	5	3,310	114	4
Indiana	....	....	....	....	.....	84	137
Kansas	64	47	3	14	65,323	1,690	1,059
Kentucky	11	6	3	2	99	211	184
Louisiana	38	20	8	10	10,524	596	668
Michigan	18	10	1	7	2,143	588	498
Mississippi	3	....	....	3	.....	9	5
Montana	6	3	3	....	680	121	93
Nebraska	....	....	....	....	.....	....	.....
New Mexico	12	10	2	....	5,273	457	355
New York	....	....	....	....	.....	10	.....
Ohio	21	9	7	5	103	955	1,236
Oklahoma	57	39	2	16	20,621	2,056	1,894
Pennsylvania	4	1	....	3	5	122	.....
Texas	288	212	7	69	411,933	9,732	8,028
Utah	....	....	....	....	.....	....	.....
West Virginia	18	4	12	2	26	582	431
Wyoming	8	1	1	6	55	72	46
Total this week	592	397	49	146	528,769	18,373	15,419
Total Last Week	640	458	58	124	520,503	....	.....
Total this Year	18,373	12,741	1,472	4,160	15,388,161	....	.....

Thompson addresses Houston Junior Chamber of Commerce

Houston, Texas.—Dressed in army uniform and looking like the officer that he was in France in the World War, Colonel Ernest O. Thompson, Texas Railroad Commissioner, last week drove from National Guard encampment at Palacios, on the Texas coast, to Houston, and revealed to the Houston Junior Chamber of Commerce some of the awe-inspiring facts about the oil industry of Texas.

If Texas were turned loose without proration, he declared, the state could produce 39,000,000 barrels of oil per day, or over 10 times as much as the United States currently consumes. (He did not reveal how many days Texas production could continue at those tidal wave proportions, and the statement apparently was based on rated potentials of wells in the state.)

In the last five years, he said, Texas production has been pushed steadily upward, from 759,000 barrels daily to 1,522,400 barrels a day.

Cotton has been displaced by petroleum, he asserted, as king in Texas. The income from oil and petroleum in Texas now exceeds the total agricultural income of the state.

Texas commission issues 362 drilling permits

Austin.—The Texas Railroad Commission approved last week permits for drilling 362 new wells in Texas, 12 less than were approved the week before.

In East Texas field there were 75 new locations, with 42 in Gregg County, 18 in Rusk County, eight in Smith County and seven in Upshur County. The East Central Texas district reported 23 scattered locations.

There were 55 permits for wells in West Texas, including 11 in Ward County and 10 in Pecos County. Panhandle area listed 50 new permits, of which 21 were in Gray and 14 in Hutchinson County.

North Texas district reported only 16 locations, all scattered. West Central Texas listed 25 permits, including 15 in Jones County.

There were 53 new permits in the Gulf Coast area, scattered throughout the district. Southwest Texas listed 65 locations with 28 in Duval and 14 in Caldwell County.

Comparison of Permits Granted for New Wells

STATE	Week Ending Aug. 21	Total this Mo.	Total this Year	Total this Date Last Year	1936 Year Total
Arkansas	7	23	151	60	103
California	42	102	1,024	659	1,054
Louisiana	24	97	801	728	1,107
Kansas	59	182	1,772	1,156	1,873
Michigan	15	56	642	480	762
Oklahoma	46	161	1,917	1,879	2,594
Texas	362	1,244	11,888	9,692	15,582
Total	555	1,865	18,195	14,762	23,075

Higher U. S. Output

PREVIOUS RECORD EXCEEDED BY 8,575 BARRELS PER DAY

UNITED STATES crude oil production continues to run at the highest levels of all time, having averaged 3,710,150 barrels daily in the past week, ended August 21. That was a little more than was reported in the previous week, an increase of 8575 barrels having occurred.

At the new level, the production was 247,250 barrels a day higher than the daily average recommended for August by the Bureau of Mines.

The small increase for the week was due to gains in Texas, Oklahoma, Louisiana, and New Mexico that outweighed declines in Kansas and California.

Texas last week averaged 1,533,600 barrels daily, or 11,200 barrels a day more than in the previous week and 138,400 barrels a day more than the Bureau of Mines recommendation.

Oklahoma output was up 4675 barrels at 653,600 daily, and exceeded the indicated demand 20,200 barrels daily.

Louisiana production rose 1600 barrels to 261,100 daily, and was 7200 barrels above the Bureau of Mines estimate of daily demand.

New Mexico was up 200 barrels at 114,100 daily, and exceeded the state's quota 13,300 barrels a day.

Kansas showed a decrease of 12,000 barrels in averaging 194,050 barrels a day last week. That was 6450 barrels daily less than the federal government bureau's estimate of average daily market requirements in August.

California last week averaged 674,000 barrels daily, 3000 less than in the previous week, and 52,200 barrels a day more than the indicated demand.

Phillips and Shell to build gasoline plant in Billings

Tulsa.—Construction of a 10,000 to 15,000 gallon gasoline plant to serve as a primary unit in handling natural gas produced in Billings pool of Noble County has been announced by Phillips Petroleum Company, who will operate, and Shell Petroleum Corporation. Continental Oil Company and Tide Water Associated Oil Company are joint operators of the first plant of the kind in the pool. The new station is to be started at once on community leases of the two firms.

Enlarging Rodessa gasoline plant facilities

Shreveport.—Plans are being drawn by engineers for Freeman W. Burford of Dallas, for a natural gasoline plant to be built in SE SE 11-20-28, Miller County, Arkansas, in the recently opened Arkansas extension of the Rodessa field. Burford is also planning to erect a 4000 barrel topping plant to double the capacity of the plant he bought some time ago at McCoy, Caddo Parish, two miles north of Rodessa, from the Griswold Refining Company.

North Caddo Refining Company has begun rebuilding its refinery at Rodessa recently badly damaged by fire.

United Gas Public Service Company is preparing to begin operations at its recently enlarged absorption plant at Cotton Valley, Webster Parish. Capacity is 30,000,000 cubic feet daily. Gas from low pressure wells in the Blossom sand and from the 8100-foot lower Marine Bodcaw gas-distillate producing horizon will be utilized.

United States Crude Oil Production

Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in Aug.)	ACTUAL PRODUCTION: BARRELS DAILY FOR WEEK ENDING	
		August 21	August 14
TEXAS—			
Texas Panhandle	.....	82,700	81,400
North Texas	.....	75,100	75,100
West Central Texas	.....	33,700	33,800
West Texas	.....	241,400	236,700
East Central Texas	.....	128,400	128,300
East Texas Field	.....	472,300	473,400
South Texas	.....	269,600	263,500
Texas Gulf Coast	.....	230,400	230,200
Total Texas	1,395,200	1,533,600	1,522,400
OKLAHOMA—			
Oklahoma City	.....	162,200	157,200
Seminole Area	.....	125,650	126,125
Crescent	.....	10,300	9,225
Lucien	.....	14,825	15,500
Fitts	.....	97,550	98,725
Edmond	.....	18,700	17,750
Moore	.....	11,950	11,750
Others	.....	212,425	212,650
Total Oklahoma	633,400	653,600	648,925
KANSAS—			
Ritz-Canton	.....	5,875	5,975
Chase	.....	7,850	9,050
Hollow-Nikkel	.....	2,825	2,850
Sedgwick	.....	4,025	4,050
Burrton	.....	14,475	14,550
Lorraine	.....	4,425	5,325
Russell County	.....	33,300	34,500
Silica	.....	18,875	19,650
Others	.....	102,400	110,100
Total Kansas	200,500	194,050	206,050
LOUISIANA—			
North Louisiana	.....	85,700	85,700
South Louisiana	.....	175,400	173,800
Total Louisiana	253,900	261,100	259,500
ARKANSAS	29,100	30,700	29,500
CALIFORNIA—			
Long Beach	.....	58,000	58,000
Santa Fe Springs	.....	43,500	42,500
Huntington Beach	.....	38,500	39,000
Dominguez	.....	29,500	30,000
Inglewood	.....	16,500	15,500
Ventura Avenue	.....	35,000	35,000
Seal Beach	.....	9,000	9,500
Midway-Sunset	.....	75,000	76,000
Elwood	.....	8,500	8,000
Kettleman Hills	.....	76,000	78,000
Mountain View	.....	18,000	18,000
Playa del Rey	.....	8,000	8,000
Wilmington	.....	55,000	55,000
Others	.....	203,500	204,500
Total California	621,800	674,000	677,000
MOUNTAIN STATES—			
Wyoming	52,800	58,800	56,200
Montana	17,700	17,900	18,500
Colorado	4,900	5,400	5,200
Total Rocky Mountain States	75,400	82,100	79,900
NEW MEXICO	100,800	114,100	113,900
EASTERN STATES	121,900	122,200	120,200
MICHIGAN	39,900	44,700	44,200
Total United States	3,462,900	3,710,150	3,701,575

Peak Month

BUREAU JUNE REPORT SHOWS MANY RECORDS ARE BROKEN

AGAIN breaking all records, daily average runs to stills in June reached 3,311,000 barrels, 71,000 barrels above the May figure and 344,000 barrels more than the average for June, 1936, it was reported August 12 by the Bureau of Mines.

Total receipts at refineries during the month were 102,316,000 barrels, of which 2,695,000 barrels were foreign, the average of 90,000 barrels a day being an increase of 5000 barrels over May. Runs to stills totaled 99,323,000 barrels and fuel and losses 246,000 barrels.

As a result of the heavy receipts there was an increase of 2,747,000 barrels in stocks, which rose from 53,919,000 barrels June 1 to 56,666,000 barrels at the close of the month.

Natural Gasoline

June production of natural gasoline totaled 162,498,000 gallons, a slight decline from the May output of 167,496,000 gallons, but the daily average output rose from 5,403,000 to 5,417,000 gallons.

The most notable natural gasoline increases in production in June were in the East Texas and Gulf districts of Texas, and in Louisiana, the bureau reported.

Stocks of natural gasoline at both refineries and plants and terminals increased during the month, the former rising from 124,530,000 to 132,594,000 gallons, and the latter from 127,008,000 to 130,200,000 gallons.

Daily average petroleum production in June fell to 3,527,000 barrels from 3,578,000 barrels in May, and total output for the month dropped to 105,812,000 barrels from 110,911,000 barrels. The month's production, however, was more than 15,500,000 barrels above the 90,185,000 barrels reported for June, 1936, and the daily average was 521,000 barrels above last year's 3,006,000 barrels.

Production for the first half of the current year, the bureau reported, reached the record figure of 620,166,000 barrels, compared with 535,911,000 barrels for the corresponding period in 1936, and the daily average for the half-year was 3,426,000 barrels compared with 2,945,000 barrels.

Production in most of the major producing states declined in June, California and Louisiana being the most notable exceptions, it was explained. Daily average production in California was 663,800 barrels, the highest since January, 1936, while Louisiana's average of 257,100 barrels was a new record for that state. Texas and Oklahoma showed the largest declines, that for the former being fairly well distributed outside of East Texas, and that for Oklahoma being mainly in the Oklahoma City field. The daily average production in the East Texas field remained unchanged from May at 468,200 barrels.

"It is noteworthy," the bureau commented, "that the number of oil wells completed in that field rose from 158 in May to 178 in June, and the average daily initial rose from 1100 barrels to 1170 barrels. The national total for oil wells completed declined from 2192 in May to 2178, but the latter was nearly 30 percent above completions for a year ago. The chief item of interest in the minor states was the continued rise of development and production in Illinois, for which some predict a return of the boom days of 30 years ago."

The yield of gasoline from crude for June was 43.5 percent, a decline of four-tenths of one percent from the May average and nine-tenths of one percent lower than the average for June of last year.

Domestic demand for motor fuel was 48,580,000 barrels or nine percent above the average of June, 1936. Exports of motor fuel continued high, it was reported, the total of 3,085,000 barrels comparing with only 2,291,000 barrels last year, stocks of gasoline, which failed to show the normal decrease in May, declined sharply in June, when 4,624,000 barrels was withdrawn from finished and unfinished stocks; 75,053,000 barrels reported on June 30, however, was nearly 8,000,000 barrels above the level of a year ago.

Details of supply and demand of all oils, in thousands of barrels, were as follows for the month:

New supply; domestic production: Crude 105.812; daily average 3527; natural gasoline 3869; benzoil 227; total production 109,908; daily average 3664. Imports, crude in bond 229; for domestic use 2466; refined products in bond 2088; for domestic use 421; total new supply, all oils, 115,112; daily average 3837. Increase in stocks, all oils, 1990.

Demand: Total 113,122; daily average 3771; exports, crude 6181; refined products 8771; domestic demand, motor fuel 48,580; kerosene 3259; gas oil, and distillate fuels 6295; residual fuel oils 26,060; lubricants 2039; wax 88; coke 374; asphalt 2674; road oil 1321; still gas 5333; miscellaneous 206; losses 1941; total domestic demand 98,170; daily average 3272.

Stocks; crude 308,788; natural gasoline 6257; refined products 235,640; total all oils 550,685; days supply 146.

Earnings Up

[*Continued from Page 16*]

and one of those, Shell Union Oil Company, shows an increase when last year's profit is lowered by the amount of a large profit realized not from current operations but from sale of an investment in an affiliated company.

Some companies showed improvement in profits closely approximating the 50 percent average for the 38 companies, these concerns including Central Texas Oil Company, The Ohio Oil Company, Pacific Western Oil Corporation, Quaker State Oil Refining Corporation, Skelly Oil Company, Socony-Vacuum Oil Company, Inc., Texas Pacific Coal & Oil Company, Tide Water Associated Oil Company.

Those not measuring up to the 50 percent average increase, although showing varying gains over last year, included: Amerada Corporation, Atlantic Refining Company, Barnsdall Oil Company, Mid-Continent Petroleum Corporation, Seaboard Oil Company, Superior Oil Corporation, Texas Gulf Producing Company, Consolidated Oil Corporation, Standard Oil Company (Indiana), Sun Oil Company.

Over a dozen companies, on the other hand, showed substantially more improvement in earnings than the 50 percent average. This year's first half was from twice to four times as profitable as last year's first half for Republic Oil Refining Company, Houston Oil Company, Margay Oil Corporation, Derby Oil & Refining Corporation, Union Oil Company of California, South Penn Oil Company, Sunray Oil Corporation, Lion Oil Refining Company, and Standard Oil Company of California, these companies having been named in the order of the greatness of improvement. Companies showing improvement less than 100 percent but more than 50 percent included: Continental Oil Company, Panhandle Producing & Refining Company, Phillips Petroleum Company, Plymouth Oil Company, The Texas Corporation.

Superior buys holdings of two West Texas firms

Tulsa.—Superior Oil Corporation of Tulsa has acquired West Texas holdings of Tex-Mex Petroleum Corporation and Abell Brothers for a consideration of about $1,000,000, part cash and part oil. Properties obtained include 18 wells and 440 acres in South Ward field, a ⅛ interest in 16 wells in the area; two wells in the Pecos Valley sector of West Texas, eight producers and two drilling tests in the Netterville region, and miscellaneous drilling equipment, camps and materials. The acquired properties are producing about 1200 barrels per day.

Gas found in Minnesota

St. Paul.—University of Minnesota geologists are surveying the area near Wildwood, a small community 13 miles east of Northome, Minnesota, following discovery of a vein of natural gas from 78 to 102 feet below the surface. The discovery was made by well diggers seeking water. The gas was accidentally ignited, burning the entire digging equipment.

WORLD DEVELOPMENT and TECHNOLOGY

Edited by
WM. V. GROSS, Associate Editor

Russia's Reserves

GUBKIN TELLS XVII CONGRESS 650 STRUCTURES AWAIT DRILL

By L. DAVID WOSK, Geologist

AFTER four sectional, pre-Congress field trips of approximately 19 days' duration each, each section visiting a different area of the U.S.S.R. to study various phases of geology, the Seventeenth International Geological Congress opened in Moscow July 21, 1937, at 11 a.m. The object of the four excursions was to prepare the attending members for an intelligent approach to discussions to take place at the congress.

Oil Fields Skipped

No examination of oil fields was made on the pre-Congress trips. This has been reserved for a post-Congress trip. The author attended the southern trip and notes that due to the large area covered in such a short time, all observations were necessarily hurried. Detailed examinations of the geological sections were made and the practical developments in mining were observed by descent into gypsum, salt, iron, coal, manganese and limestone mines and quarries. The leaders of the trip, the local technical and governmental authorities encountered, as well as the entire populace, did everything within their power to facilitate every need of the group. In most instances, the explanations were frank and complete; the translations good. The language handicap was of course trying, though not serious. Every effort was made to acquaint the excursion members with the advance of Soviet science and development on the entire front, technically, theoretically, scholastically and culturally.

Smith Opens Congress

The opening of the congress proper was accompanied by considerable ceremony. Unique translation facilities were provided. Head set receivers for each delegate with the facilities for plugging in at each seat enabled the delegates to hear each address in either English, French, German, Spanish or Russian.

Doctor Philip S. Smith, member of American Association for the Advancement of Science, American Association of Geographers, Washington Academy of Science, Washington Geological Society, Mining and Metallurgical Engineering Institute, opened the congress as head of the American delegation. This is in line with custom, namely the representative of the nation holding the last congress, opens the new.

In the name of the Soviet Union, V. I. Mezhlauk, peoples commisar of heavy industry, then welcomed the delegates. He pointed out that geological maps covering more than 8.5 million square kilometers are now in existence and are rapidly being added to. He stressed the Soviet desire for peace and the hope that the international character of science might advance that cause.

Presidium Personnel

Acamedician N. P. Gorbunov, secretary-general of the organization committee, announced the decision of the general council (composed of 82 members, including 7 members of the organization committee, the heads of all government delegations, representatives of geological societies, academies and universities) to set up a presidium of the following persons: I. M. Gubkin, vice president of the all Soviet-Union Academy of Sciences as president of the congress; N. P. Gorbunov, member of the Academy of Science of the U.S.S.R., general secretary; and the heads of all government delegations as vice presidents.

After approval by the congress membership, Dr. Smith turned the chair over to Professor Gubkin, who then moved the election of M. I. Kalinin, chairman of the central executive committee of the U.S.S.R., as honorary president of the congress, which proposal was adopted.

Gubkin on Reserves

After an address commemorating Karpinsky, the father of Soviet geology, who died last year, the real business of the congress opened with a report on petroleum reserves delivered by M. Gubkin to approximately 1000 delegates and guests from about 50 nations. In the introductory remarks, it was pointed out that neither Germany nor Italy were represented.

Professor Gubkin prefaced his remarks as follows:

"It must first of all be stated, that, in effect, no serious attempts of scientifically calculating the world's petroleum reserves have been made. Such estimates have either been undertaken by individual enterprises such as the American Petroleum Institute or by individual geologists and economists without unison or co-ordinating their work with the corresponding institutions and individuals in other countries.

Initial Attempt

"Estimations of reserves of iron, coal and other minerals were effected at the World Geological Congresses, but not one of the previous congresses raised the question of calculating petroleum reserves on a world wide scale.

"As a result of this state of affairs, a comprehensive and sufficiently scientifically based conception of the world's petroleum reserves is absent. What is more, there does not even exist a universally recognized and uniform method of estimating oil reserves or a unified and firmly established classification of these reserves in categories in order to render calculations comparable in different countries."

No Grounds for Apprehension

As to reserves in general, he sounded a very optimistic note, stating: "It appears to us that no grounds exist for apprehensions in regards to the supplying of mankind with oil at least for the near future. Even the ever growing consumption of oil is in practice compensated by the continuously increasing oil reserves, by means of new discoveries and ever growing progress in methods of its discovery and extraction from the earth."

Gubkin stressed the development of deep drilling and improved technique in the raising of the co-efficient of extraction as two highly important methods of extending world reserves. He discounted those that continually frighten the world with inadequate estimates, pointing to similar erroneous estimates in the past.

The organizational committee for the convening of the congress sent a special brochure setting out the Soviet view of the method of estimating petroleum reserves and their classification in the hopes of obtaining exhaustive criticism, he stated. No answers were forthcoming. The next step was

I. M. Gubkin, dean of Soviet geologists, telling those in attendance at the Seventeenth International Geological Congress in Moscow about the crude reserve situation in U. S. S. R.

to appeal to the geological institutions throughout the world to furnish them with data regarding estimations of petroleum reserves in their respective countries. Such data were received only from the United States and a slight bit from Holland. This, he observes, is most unfortunate as no comprehensive study could have been laid before the congress without the co-operation of the world's producers.

Method of Calculating

Before launching into an estimation of the actual reserves of the U.S.S.R., Professor Gubkin explained the Soviet method of calculating these reserves as follows:

"The principal oil-producing regions prior to the October Revolution were within the limits of the Trans-Caucasus (Baku district, the Apsheron Peninsula, which gave more than 85 percent of the total output in the country) and North Caucasus (Grozny and Maikop districts).

"Prospecting work greatly developed throughout the entire territory of the Soviet Union following the nationalization of the oil industry, and the geographical distribution of petroleum regions is becoming different. New regions acquired and still continue to acquire growing importance—the West Urals, Middle Volga district, Prikhama district, Middle Asia, etc. The new face of Siberia, hitherto unknown, begins to appear. The old existing petroleum fields of Baku, Grozny, Maikop and Emba have considerably increased their oil-bearing areas.

45 Commercial Fields

"About 45 oil fields are at present being worked industrially, about 80 fields are being prospected by drilling.

"During the existence of the Soviet government more than 160 fields have been surveyed and about 650 structures are under survey and ready to be converted into the objective for introduction of deep industrial prospecting. We have registered more than 400 different structures in the estimation of reserves in Azerbaijan alone. It is therefore no cause for wonder that our petroleum resources grow like the knight in the fairy tales, not daily, but hourly, and what has been calculated but recently is soon to be found out of date.

Reserve Growth Rapid

"The actual course of the development of Soviet petroleum industry does not exhaust, but raises, the petroleum resources of the U.S.S.R., as the growth of reserves covers the present day consumption dozens of times over. This consumption is increasing annually in the Soviet Union, and very much petroleum will be required in the near future. It is therefore essential that we know more or less exactly, the resources which we possess in order to properly plan our petroleum industry. We, therefore cannot be content by ascertaining merely one category of reserves, but must distribute our resources into several qualified groups. The actual method of estimation applied in our plan-conducted country is somewhat different than that in other states. It is essential that we know what reserves are ready and prospected in order to plan our production.

Resources Subdivided

"In view of the vital importance of the question of classification of resources into several qualified groups. more like to briefly draw attention to this. Our petroleum resources are subdivided, according to the extent of their preparation for exploitation and the degree to which they are surveyed, into the following five catagories:

1—**Prepared (A1).** This is understood to embrace the residuary industrial reserves in those horizons and seams which are being worked by existing wells.

2—**Surveyed (A2).** These embrace the surveyed and outlined resources, or those prepared for the sinking of new wells to the permissable degree of density of wells. These two categories, necessary in planning production, are estimated by means of curvature.

3—**Visible (B).** These are reserves which contain deposits disclosed by several wells, with an established industrial flow of petroleum but not outlined and completely surveyed.

To the same category are referred petroleum reserves in the lower seated horizons as yet undisclosed by drilling in the worked fields, where the presence of petroleum gives no cause for doubt on the basis of the experience of working adjacent fields where these, as yet undisclosed horizons, contain industrial petroleum and are already being worked. Drilling to horizons with visible reserves (B) have the object of their outlining and preparation for continuous exploitation. Reserves are calculated mainly by the volume method.

4—**Assumed (C1).** In the areas being worked this represents the petroleum reserves in those seams and horizons the existence of which is not established and is assumed on the grounds of evidence of the geological structure of the field and locality in which they are situated.

In the areas under survey they are those reserves which are assumed in the established and sometimes partly already surveyed structures, but not as yet verified for their content of industrial petroleum. Reserves of this nature are essential to us in planning the introduction and exploitation also of new horizons and, mainly, of new struc-

† "WHERE THE BEST OF RIDERS QUIT" — by Charles M. Russell

Adapting Art for Industry's Sake

The worthwhile things are those that endure. A statue is chiseled from marble—a painting takes form under the hand of the master—a device beneficial to all mankind is perfected by the engineer. In industry, art is the adaptation of things to the uses of life. ☆ At Axelson the knowledge of generations of chemists, designers and engineers are comprehensively applied to the manufacture of Axelson products. Axelson Pumps and Sucker Rods represent not only artistry of line and finish but the finest working of skilled artisans in every stage of their fabrication. Their perfect performance in the field reflects the cautious practices of careful production. ☆ Axelson Manufacturing Company, P. O. Box 710—Vernon Station, Los Angeles. St. Louis. 50 Church Street, New York City. Tulsa. Mid-Continent and Eastern Distributors: Frick-Reid Supply Corp. Rocky Mountain Distributor: Great Northern Tool & Supply Co.

☆ ☆ ☆

† *No one has ever portrayed the cowboy and his horse more truthfully than Charles M. Russell. Here the rider quits a fighting horse, which is intent on landing on him. As the horse hits the ground, the cowboy helps to bump the horse's head. As the horse comes up, a grasp of the horn and the rider will be in the saddle again.* ☆ *This is the first time that permission has been granted for the reproduction of this bronze. A reproduction of this picture, suitable for framing, is available upon request.*

AXELSON PUMPS AND SUCKER RODS

TABLE 1

Category of Russian Reserves
(In millions of tons)

DISTRICT AND REGION	A	B	A+B	C_1	C_2	Total
Azerbaijan S. S. R.:						
1. Apsheron Peninsula	123.1	407.6	530.7	182.8	67.8	781.3
2. Kabristano-Sheimakh District	....	21.6	21.6	503.8	211.7	737.1
3. Prikurin Region	....	....	.....	279.5	298.6	578.1
4. Other regions	....	18.4	18.4	374.2	63.2	455.8
Total for Azerbaijan S. S. R.	123.1	447.6	570.7	1,340.3	641.3	2,652.3
Georgian S. S. R.:						
Throughout the Georgian S. S. R.	2.6	34.6	37.2	107.5	31.5	176.2
North-Eastern Caucausus:						
1. Grozny District	15.5	52.0	67.5	107.3	.....	174.8
2. Daghestan District	20.0	47.5	67.5	78.5	.....	146.0
Total for the North-East Caucausus.	35.5	99.5	135.0	185.8	.....	320.8
Kuban-Black Sea District:						
Maikop, Kuban, Taman and Crimea regions	9.2	12.6	21.8	63.4	71.7	156.9
Emba Oil-Bearing District:						
.....	30.6	1.3	31.9	618.5	540.0	1,190.4
West Slopes of the Urals, the Volga Region and the Kalmyk Autonomous S. S. R.:						
1. West Urals (Bashkir ASSR)	8.8	10.4	19.2	215.0	131.0	365.2
2. Orenburg Aktyubinsk region	....	....	.....	35.1	67.0	102.1
3. Permian, Priuralie and Krikamie	4.1	3.6	7.7	102.8	243.5	354.0
4. Kuibyshev region	3.0	4.7	7.7	81.7	98.1	187.5
5. Lower Volga and Kalmyk-Saltz Steppes	....	....	.....	.....	181.7	181.7
Total for the West Urals, Volga and the Kalmyk A.S.S.R.	15.9	18.7	34.6	434.6	721.3	1,190.5
Northern District:						
Area being exploited	0.7	10.0	10.7	11.4	.....	22.1
Sakhalin Island:						
Sakhalin Island	10.3	10.1	20.4	98.5	220.9	339.8
Middle Asia:						
1. Turkmenian SSR	0.6	2.7	3.3	67.1	182.6	253.0
2. Ferghan Valley	1.0	2.7	3.7	11.6	40.1	55.4
3. South Tadjikistan and South Uzbekistan	1.4	11.9	13.3	55.7	49.7	118.7
Total for Middle Asia	3.0	17.3	20.3	134.4	272.4	427.1
Total for the U. S. S. R., 1937	230.7	652.0	882.7	2,994.5	2,499.1	6,376.3
Totals, January 1, 1935	....	....	212.5	312.7	2,683.1	3,208.0
Increase or decrease, 1937 over 1935	....	....	+670.2	+2,671.8	—184.0	+3,168.3
Percentage Increase: January, 1935—100 percent	....	....	420%	960%	93%	198%

tures. These reserves are estimated by the volume method according to indices obtained from the experience of working up petroleum deposits in the same locality in which the structure concerned is situated.

5—**Possible (C2).** Are those reserves which, due to several geological considerations, are considered possible in structures as yet unestablished, undisclosed and the presence of which is only assumed. An idea of the geological formation of these structures and their extent is rendered by the method of analogy.

Calculation of these reserves are necessary for us in developing wide perspective planning for the creation of new petroleum bases like that which we are at present creating in the east of the European part of the Soviet Union.

"In addition to these categories, for which we render numerical expression in tons, essential for our work of planning, there exist so called extra-category reserves — 'geologically possible resources,' which are not included in our calculations at all. These are possible reserves in localities and districts which, according to considerations of geological nature, may be found to be oil bearing. Certain districts in Siberia or, for instance, the sub-Moscow depression, represent such localities."

With these classifications in mind, Prof. Gubkin estimated the reserves in the U.S.S.R. as per accompanying table.

Method Different

Professor Gubkin recognized the difference in this method of calculating reserves and the American method. He pointed out that the American method did not take into consideration reserves of structures not tested on an industrial scale. He pointed out that American proven reserves method of calculation would correspond to his categories A+B = 882.7 million tons or 6532 million barrels placing the U.S.S.R. second to the United States. He pointed out however that the Russians did not accept that figure as their reserves, but only that portion of their reserves surveyed and prepared for exploitation.

In accordance with the definition of categories of reserves given in the "Statistical Year-Book of the World Power Conference" on page 45, stating "Proven petroleum reserves denote the total area within the country concerned, consisting of all of the exploited fields plus likewise all other areas which, by means of geological survey, drilling or other prospecting methods become known or may, with grounds, be accepted as containing petroleum in quantities sufficient in order to guarantee actual exploitation" he estimates their total reserves proven as consisting of categories A+B+C1=3,877.2 tons. He indicates the task of Soviet geologists and engineers: to bring the category C2=2,500 million tons to a higher category.

Levorsen's Theory Used in Russia

In considering the reserves of the United States the figures given are shown in Table 2. Gubkin notes a reduction of 76.8 million tons from January 1, 1935, to January 1, 1937, with an increase noted in only the states of New Mexico, Kansas and Louisiana. He asks the reason for this and attempts to answer, using the articles of A. I. Levorsen, Wallace E. Pratt and E. DeGolyer, recently reprinted in THE OIL WEEKLY from speeches made at the last A.A.P.G. meeting held in Los Angeles, California. He agreed with Mr. Levorsen that it was necessary to look for new oil in stratigraphic traps rather than to confine activities to "structure chasing." He pointed out that the location of stratigraphic traps was not new in the Soviet Union, he

TABLE 2

The Petroleum Reserves and Their Territorial Distribution in the U. S. A.
(In millions of tons)

STATE	Reserves Jan. 1, 1935	Yields 1935 and 1936	Reserves Jan. 1, 1937	Change in Reserves 1935-1936		Increase of Reserves Due to Discoveries 1935-1936
				Plus	Minus	
California	440.7	57.1	399.5	....	41.2	15.9
Wyoming	36.1	3.8	32.3	....	3.8	....
Montana	13.8	1.4	12.4	....	1.4	....
Colorado	2.1	0.4	2.0	....	0.1	0.3
New Mexico	61.0	6.3	63.6	2.6	....	8.9
Texas	896.7	110.3	867.8	...	29.9	80.4
Oklahoma	167.0	51.8	154.2	...	12.8	39.0
Kansas	52.7	15.0	76.7	24.0	....	39.0
Arkansas	13.9	3.0	11.3	...	2.6	0.4
Louisiana	60.3	17.7	70.8	1.5	....	19.2
Illinois	5.0	1.2	3.8	...	1.2	....
Indiana	0.7	0.2	0.5	...	0.2	....
Kentucky	6.8	1.5	5.3	...	1.5	....
Michigan	8.6	3.7	6.0	...	2.6	1.1
New York	10.1	1.2	9.0	...	1.1	0.1
Ohio	5.4	1.1	4.3	...	1.1	....
Pennsylvania	45.9	4.4	41.5	...	4.4	....
West Virginia	5.3	1.0	4.3	...	1.0	....
Total	1,842.1	281.1	1,765.3	28.1	104.9	204.3

Left: V. I. Mejlauk, peoples' commissar of heavy industry for U. S. S. R., prominent in activities of the Seventeenth International Geological Congress in Moscow, and Dr. Phillip Smith, head of the American delegation who delivered the opening address of the congress. Delegates were furnished selective earphones as papers were presented in several languages simultaneously, the listener plugging in on that language he best understood.

himself having located the Maikop "shoestring" in 1910. In this connection he further points out the Soviet knowledge of seaboard sand bars in the same district for a distance of nearly 40 Km.

Gubkin drew attention to the rapid utilization of proven oil structures as follows: "It is this (high rate of consumption in the U.S.) which accounts for the rapid utilization of all available structures and the absence of reserves of other catagories than 'proven,' and together with Mr. Levorsen we agree that the exhaustion of structures does not denote exhaustion of petroleum in the U.S.A., and the path indicated by him, of future search on the basis of profound investigation of stratigraphic correlation and paleogeography will enrich the U.S.A. with even greater resources of petroleum, and new discoveries will show an increase."

No Break Down Figures

Unfortunately no break down figures for other countries was given, and it is hoped that before the end of the congress sessions a more thorough discussion of the entire subject is undertaken. Touching upon the reserves of individual nations and the rate of consumption therein, Gubkin pointed out the difficulties encountered in the following words:

"The problem of determining to what degree the world's industries are provided with resources of petroleum is highly complicated. Calculations of the provision of individual countries with petroleum are frequently to be found in literature and the methods applied for these estimations, in our opinion, give rise to serious objections. As a rule, the statistical indices of production for the current year are taken as the basic index in these calculations and it is on this that is determined for how many years any country is provided for with prospected petroleum. Calculations of this nature are highly provisional. Political and economical conditions prevailing in one or another country, the position of the world petroleum market, undergoing such frequent and sharp fluctuations and shakings—all write their decisive correctives into these calculations. Due to all this, individual countries have to resort frequently to artificial reduction of petroleum output, in which the world economy stands so much in need (proration in the U.S.A.).

No Proration in U.S.S.R.

"All these methods find no application whatever in the U.S.S.R. The continuous growth of the entire national economy and the corresponding increase in consumption of petroleum and its by-products obliges us, in calculations of the extent of provision, to base estimations on the dynamic indices determining this continued progress forward."

The above quotation is interesting insofar as it indicates that there is no proration whatsoever in the Soviet Union, that producing wells are being flowed to capacity and, consequently, that producing fields (reserves) may be estimated by the production decline curve, as stated earlier in the article. It would also seem that the transfer of reserves from what Americans would call "semi-proven" or "wildcat" to "proven" categories is in the Soviet Union a process proceeding at the same rate as the general industrial program. This method cannot be easily used in America, as shown by our experience in the last few years and Prof. Gubkin comments on this point as follows:

Scores Rapacious Drilling

"Capitalist economy, conditions of competition between different private owners, the chase after quick and easy profits under which national interests drop away entirely and also those of the world economy, lead to the rapacious exploitation of oil deposits so frequently to be observed. I am certain that everybody present here is able to cite dozens and hundreds of incidents of voracious treatment of petroleum resources, and without stopping to deal with this question in more detail, I confine myself to underlining the necessity of this congress raising its voice against this failing and to appeal for its speedy liquidation."

Prof. Gubkin concluded his exceedingly interesting address with the following words:

"In conclusion, I take the liberty of expressing firm assurance that this brief paper of mine will give rise to a sufficiently intense exchange of opinions between the highly respected members of this congress, which will serve to supplement and modify with later data the information submitted by me. I am filled with the hope that this congress will not only calculate the reserves of petroleum but will also raise, in all its importance, the questions bound with their proper utilization in the interest of all mankind."

This address was well received and has been the cause of considerable comment and active discussion, especially among foreign delegates. The method of classification of reserves is new to most, and at the special petroleum section of the congress it is hoped that ample time will be given to a full and frank discussion of this important problem.

EXPORTS DECLINE

U.S.S.R. ships 167,465 tons of products in June

Exports of petroleum products from Russia this June showed a sharp decline from the amount shipped out in June of 1936, dropping from 219,069 tons in June, 1936, to 167,465 tons in June, 1937, according to Julian Gillespie of Istanbul, Turkey.

Of the June exports, 88,826 tons were heavy fuel oils, 50,980 tons gasoline, and 15,966 tons lubricating oils, these three products accounting for 89 percent of petroleum products exported.

Italy was the largest buyer from Russia in June, getting 45,210 tons of the above total. England was next largest with 10,072 tons. Latvia and Spain were about even for third place with slightly more than 7200 tons each.

OIL SHALE WORKS

American engineer retained in Tasmania

Adelaide Oil Exploration Company is reported to have retained an American engineer for development of a shale oil industry at Latrobe, Tasmania, where deposits are estimated to amount to 2,500,000 tons of shale. Intentions of the company are to build a plant, it is said.

In a communication to THE OIL WEEKLY, A. B. Bryan, assistant to the secretary of the Department of Mines at Hobart, Tasmania, quoted P. B. Nye, government geologist, as stating, "There are no oil or gas fields in this state."

Moose Dome Strike

SEVERAL CANADIAN COMPANIES HOLD ACREAGE NEAR WILDCAT

MOOSE DOME was proven to be an important oil field in Alberta, Canada, last week when 100 barrels daily was obtained by Moose Oils, Ltd., from No. 2 on Legal Subdivision 8, Section 29, Township 22, 6-w5, at the remarkably shallow depth of 1553 feet. Location of the field is 40 miles west of Calgary. Production testing 47.7 gravity is from Devonian limestone.

The wildcat gave unexpected showings of crude a week ago at 1532 feet, and after drilling 21 feet farther, bailing was started. Gas pressure was estimated at 1,000,000 or 1,500,000 cubic feet a day. Officials are undecided whether to complete at the present depth or continue to 3100 feet, as originally planned.

Plan to Drill Another

Several companies hold acreage in the vicinity of the wildcat, and the section will be the scene of considerable development during the coming months.

The Moose Dome test has a hole of 16 inches diameter the entire depth, but smaller holes can be drilled to the producing horizon for between $20,000 and $25,000. The area offers opportunities to individuals and companies who would be unwilling, or financially unable, to undertake development programs in the Turner Valley area, where production is obtained from the Madison limestone below 6000 feet.

The wildcat is the second test of Moose Oils in the area, No. 1 having filled with water when drilled to 2834 feet. The company will start No. 3 immediately, and will probably carry this to the 3100-foot level if No. 2 is completed at its present depth. No. 2 drilled 220 feet through Banff shale before entering the upper Devonian. In the Devonian it entered the upper Minnewanka, so called because outcroppings of it may be seen at the surface on the west side of Lake Minnewanka. The strike came in the lower part of this structure.

Three Wildcats for Wainwright

Announcement of three new tests on Wainwright structure, where Battleview Oils Ltd.'s wildcat is awaiting a production test, was made during the week. Battleview Oils will start No. 2 as soon as equipment is released by No. 1. Other tests will be started immediately by South End Petroleums Ltd. and Pacalta Oils Ltd.

Meanwhile, Battleview Oils' wildcat was standing with casing set in the sand, encountered at 1870 feet. Bottomed at 1894 feet, the test encountered gas at 1424, 1625 and 1710 feet. The sand to be tested showed heavy saturation and dripping oil, giving operators reason to believe it will make a good producer.

"Several Hundred Feet High"

In the Turner Valley field, Mercury Oils No. 8, Legal Subdivision 3, Section 4, Township 19, 2-w5, encountered the Madison limestone at 5516 feet, several hundred feet higher than expected. It has been drilled 31 feet into the lime, and casing is being set preparatory to deepening to production. The well is only 600 feet from Royalite Oil Company's Sterling-Pacific 3, which did not reach the lime contact until 6200 feet.

Richland Oil Company's No. 3, deepest drilling test in the Turner Valley field, was drilling at 5952 feet, 345 feet in the Madison, and expected to reach the porous producing horizon momentarily. An increasing flow of gas and green crude oil is reported. Location is Legal Subdivision 14, Section 28, Township 18, 2-w5.

Seven Nearing Lime

Seven Turner Valley tests are nearing the Madison limestone, with completion expected within two months: Davies Petroleums No. 2, drilling at 6310 feet with the top of the Madison expected at 6400 feet; Share Royalties, drilling at 6197 feet, Madison expected at 6600 feet; Granville Oils, drilling at 6390 feet, Madison expected at 6900 feet; Model-Spooner-Reward Royalties, drilling at 5525 feet. Madison expected at 6400 feet; Commoil, drilling at 6152 feet, Madison expected at 6800 feet; Brown Oil Corporation's No. 1, drilling at 6028 feet, Madison expected at 6350 feet; No. 2, drilling at 6120 feet, Madison expected at 6500 feet.

Continuing the successful series of acid treatments given Turner Valley wells during the past three months, Carleton Royalties, one of the older producers in the field which recently had been producing only about 20 barrels a day, is producing more than twice this amount following acidization last week.

In addition to the above, Turner Valley lists 30 tests. Of these 23 are drilling, 1 is fishing, 2 are waiting on casing or drill pipe, 3 are shut down at various depths, and one is a derrick.

Canadian Wildcats

Reports from other West Canadian structures follow: On Birch Ridge, Elbow Oil Company, drilling at 5183 feet; on Calling Valley, Anglo-Indian Oils Corporation, building derrick; Sentinel Oils, resuming at 5850 feet; on Cardston, Franco Oils, drilling at 3804 feet; on Clearwater, Western Development Company, drilling at 122 feet; on Coutts, Home Oil Company's Coutts No. 1, drilling at 710 feet; on Duncan, Spindletop Oils, drilling at 1285 feet; on High River-Aldersyde, Ranchmen's Gas & Oil Company, drilling at 7225 feet; on Highwood-Sinclair, Green Valley Petroleums' Banner, drilling at 3054 feet; South End Petroleums, drilling at 5105 feet; on Hunter Valley, Hunter Valley Oil Company, drilling at 8074 feet; on Kootenay Dome, Roxana Petroleums, drilling at 3138 feet; on Lethbridge, Lethbridge Petroleums, drilling at 2215 feet; on New Valley, New Valley Oil Company, drilling at 8445 feet; on Pincher Creek, Weymarn Petroleums, giving acid treatment at 6412 feet; on Ribstone, Dina Oil & Refining Company, drilling at 200 feet; London Ribstone Petroleums, testing with no depth reported; on Steveville, Anaconda Oil Company, drilling at 610 feet; on Taber, Plains Petroleum Corporation's No. 2, drilling at 2360 feet; No. 3, drilling at 1810 feet; on Wainwright, Altoba Oils, erecting derrick; on Watson, Mar Jon Oil Company's No. 3, drilling at 5520 feet; Mar Jon-Maxmont Syndicate, drilling with no depth reported.

Incorporation of two new oil companies was announced in the last issue of the Alberta Gazette; Amerada Oil, Ltd., Calgary, was registered with capital of $62,500 in 250 shares of $250 each. G. and B. Petroleums, Ltd., Calgary, has capital of 50,000 shares of no par value which may be sold at a minimum of $1 per share.

TURNER VALLEY UP

Runs for August will be 250,000 bbls., estimate

Sales of crude oil and naphtha by producing companies of Turner Valley, Alberta, Canada, to Imperial Oil Company, Ltd., and British American Oil Company, Ltd., principal distributing companies, during the first seven months of this year totaled 1,004,628 barrels, compared to 569,567 barrels for the same period last year. In addition, large amounts were sold to smaller concerns and to farmers and others at the field.

Sales this year have shown monthly advances from 101,856 barrels in January to 194,134 barrels last month. A completion early this month of Monarch Royalties, now yielding about 650 barrels daily, and Royalite Oil Company's Sterling-Pacific 5, with production well over 1000 barrels daily, and successful acid treatment of older producers resulting in increased production is expected to boost August sales well over 250,000 barrels.

July marketings included 119,494 barrels to Imperial Oil Company, comprising 2388 barrels of naphtha, 42,346 barrels of discolored crude naphtha and 74,760 barrels of crude oil; and 74,640 barrels to British American Oil Company, comprising 72,138 barrels of crude oil and 2502 barrels of naphtha.

BRIT. COLUMBIA TEST

Natural Gas Development Corporation, Ltd., is drilling near 2000 feet below sea level on a wildcat two miles north of the international boundary in the Boundary Bay area, 9 miles from New Westminster, British Columbia, Canada. The company has more than 5763 acres in the vicinity, with additional options to the south. Using heavy rotary equipment, it expects production around 2400 feet. Should the wildcat produce, others will be drilled.

STEEL 5 Days

This steel valve taken from service in a sour crude area in west Texas lasted only 5 days. Corrosion comes from oil, hydrogen sulphide, and brine.

. . . soon eats the face off the average valve . . . but look at the record of

"K" MONEL

"K" MONEL 14 MONTHS

Unretouched photograph of a "K" Monel (KA-Alloy) valve drop after 14 months' service in a wet tubing job, Phillips No. 1, Baker, Glascock County, Texas. In the same general area the steel ball shown above gave only 5 days' service. Photographs: Courtesy of Jon R. Long, Mfr., Fort Worth, Texas.

IN the heart of the West Texas area—sour crudes through corrosion and abrasion eat and grind away in no time at all anything but the one superior valve metal. . . . Look at this record in working barrel valves:

COMMON STEEL: About 20 days, sometimes only 48 hours.

ALLOY STEEL: About 45 days.

"K" MONEL: Over 14 months.

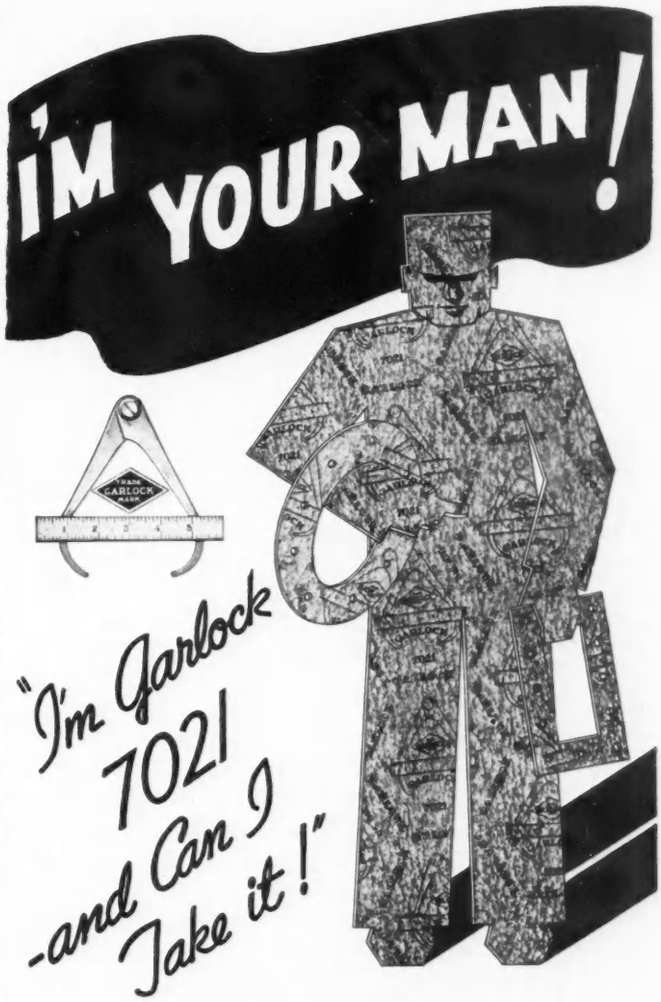
Since December 1932 "K" Monel* valves have been proving their worth. A life of two years is common, for a ball and seat or drop and seat of "K" Monel has *ten times the life* or even more, depending on locality.

To resist corrosion and abrasion in corrosive areas, "K" Monel, a heat-treatable grade of Monel, makes the most effective drop and seat and ball and seat yet developed. If you would like technical data, write for bulletin T-9, "Engineering Properties of "K" Monel."

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street **New York, N. Y.**

INCO MONEL

* "K" Monel is a registered trade-mark applied to a Nickel alloy containing approximately two-thirds Nickel and one-third copper with small amounts of aluminum which make it susceptible to hardening by heat-treatment.



"YES, SIR! Give me a tough job and I'll eat it up! I'm made of long fibre asbestos, blended with heat and oil resisting compounds and bonded into sheet under tremendous pressure. I'm built plenty strong to stand the gaff!"

GARLOCK 7021 Compressed Asbestos Sheet Packing gives long, economical service against all oil and steam conditions—particularly light oil at high temperatures and superheated steam. Get acquainted with GARLOCK 7021—and you've made a friend.

THE GARLOCK PACKING COMPANY
PALMYRA, NEW YORK

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1887-1937 FIFTIETH ANNIVERSARY

Garlock 7021
COMPRESSED ASBESTOS SHEET PACKING

PIPE LINE NEWS

To lay 682-mile gas line in Virginia.

* * *

Lisbon field to receive second crude outlet.

MOST important new pipe line construction announcement last week was for the building of a 682-mile gas line in Virginia. The line will be laid for Dominion Gas Company, and will extend from the Bergton field in northwest Rockingham County across the northern part of the state to serve eastern and tidewater sections of Virginia. The Bergton field, on the Virginia-West Virginia state line, was discovered a year ago by C. W. Thomas. The Dominion Company will extend the line to connect with Ohio fields should Bergton reserves prove insufficient to serve communities along the 682-mile route.

New Lisbon Outlet

Survey work for right-of-way for a 6-inch welded pipe line from the Lisbon field to Homer, North Louisiana, a distance of about 18 miles, was begun last week by Caddo Pipe Line Corporation, subsidiary of Grogan Oil Company.

The contemplated line, which will provide Lisbon with its second pipe line outlet, will connect at Homer with Louisiana Oil Refining Corporation's Shreveport-Havnesville trunk, and the oil will be delivered to Rodessa Oil & Gas Company's refinery at Cedar Grove, Shreveport suburb. Rodessa Oil & Gas Company is also a Grogan subsidiary.

Announcement of plans for this line followed negotiations that had been carried out by a Lisbon operators' subcommittee composed of L. O. McMillan, chairman; C. H. Lyons and P. W. Woodruff, named to seek additional outlets, after Gulf Pipe Line Company had announced it would cut its Lisbon runs to 10,000 barrels daily August 17. However, Gulf held this plan in abeyance for 60 days. It has been handling about 12,500 barrels from Lisbon daily. It has the only pipe line to the field at present.

Sulphur Bluff Contract Made

American Liberty Pipe Line Company, purchaser of low gravity crude produced in the Sulphur Bluff field, Hopkins County, Northeast Texas, has contracted to deliver crude to Shell Petroleum Corporation's refinery at Norco, near New Orleans. The deal is reported to involve the sale of a maximum of 400,000 barrels per year.

Seven miles of 6-inch welded line will be built from American Liberty Pipe Line Company's storage tanks in the Sulphur Bluff field to a 15-car rack on the Cotton Belt Railroad at Weaver. The company has been the principal market outlet for Sulphur Bluff production since the completion last December of its 6-inch line to Talco field, where deliveries are made on contract to local refineries, with the surplus oil marketed in tank cars loaded at Talco.

Starts Lodi Shipments

Southern Liberty Pipe Line Company, subsidiary of American Liberty Pipe Line Company, last week moved the first oil from the Lodi, Marion County, Texas, extension area of the Rodessa field through its new six-inch pipe line. Plans are being considered for extending the present system another five miles southwest to the Jefferson region.

Texas Pipe Line Tax

The Texas State Tax Board has announced final assessed valuations on the intangibles of all pipe line companies which have not filed suit attacking Board assessments.

The total intangible value of the lines listed is $24,085,059, or $2,432,989 more than the 1936 assessment. This did not include any allowance for the Stanolind Pipe Line Company, whose final assessment was not made public.

Suits have been filed to enjoin the assessments by Humble Pipe Line Company, Texas Pipe Line Company, Magnolia Pipe Line Company, Texas Empire Pipe Line Company, Atlantic Pipe Line Company and Crude Oil Pipe Line Company.

Whether these assessments will be announced by the Board subsequently could not be ascertained. The Board, however, has made preliminary assessments which are included in the comparative table set out below.

Seek Over-Paid Taxes

A law suit in which Humble Pipe Line Company seeks to recover $4000 in taxes from the federal government was filed in federal court at Houston August 18.

The petition said the pipe line concern had paid a 4 percent tax on $256,196.68 revenue from storage and transportation of oil in seven months ending in March, 1933.

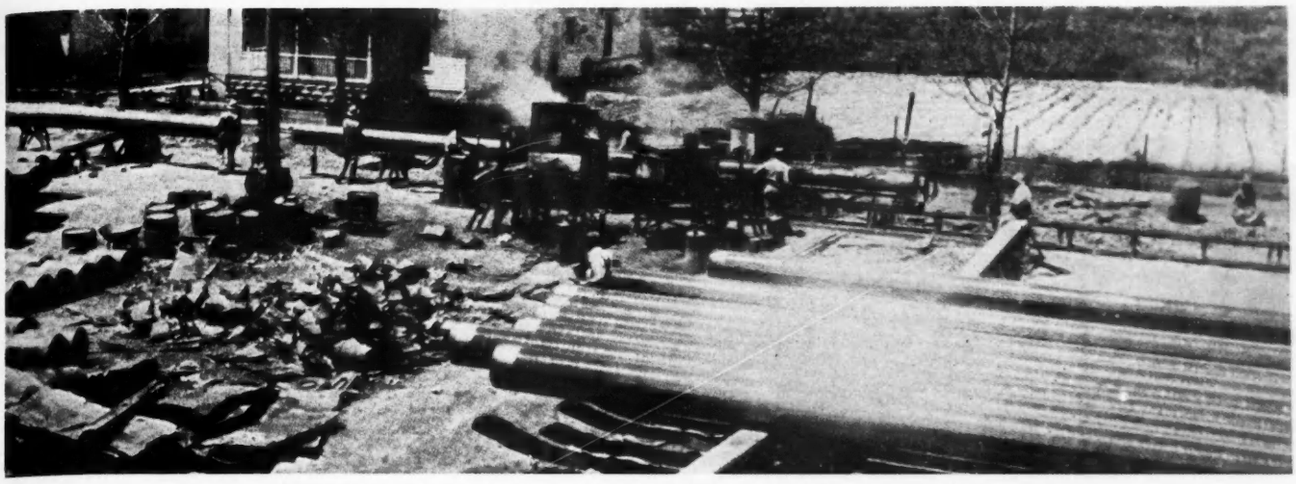
Auditors had discovered in a subsequent check, the petition continued, that the government had demanded and received $4000 in excess of the regular tax.

Parsons Without Gas

Lack of sufficient gas to continue operations was given as reason August 9 for the announcement that Ozarks Pipe Line Company, Mission Oil & Gas Company and Citizens Gas Company, all affiliated concerns with the same officers, and headquarters in Parsons, Kansas, would discontinue business as of August 21. The Cities Service Gas Company may take over physical properties of the interests according to word from Ralph Weir, manager of Gas Service Company, one of the Doherty companies, although transactions had not been completed.

Texas Pipe Line Tax Assessments

COMPANY	1937 Final	1937 Tentative	Reduced Final From Tentative
Sinclair	7,290,620	7,524,000	233,380
Gulf	3,163,260	5,032,000	1,868,740
Shell	4,661,355	6,216,000	1,554,645
Sun	1,827,919	5,331,000	3,503,081
Pure	2,694,015	6,975,000	4,280,985
Tidal	1,035,295	3,000,000	1,964,705
Paso-Tex	200,000	440,000	240,000
Republic	443,850	1,470,000	1,026,150
Yount Lee	585,475	2,178,000	1,592,525
United	150,000	1,000,000	850,000
Pan American	575,000	1,500,000	925,000
Standish	50,000	25,000	25,000 increase
Valley	125,000	150,000	25,000
Sinton	127,260	506,000	378,740
American Liberty	328,310	1,245,000	916,690
Arkansas	782,700	1,600,000	817,300
Reagan Co. Pur.	45,000	750,000	705,000
Total	24,085,059	44,942,000	20,881,941 25,000 increase
Humble	.....	17,356,000	.....
Texas	.....	9,442,000	.....
Magnolia	.....	8,225,000	.....
Texas-Empire	.....	7,053,000	.....
Atlantic	.....	6,980,000	.....
Crude Oil	.....	1,000,000	.....
Toronto	.....	500,000	.....
Illinois	.....	300,000	.....
Stanolind	.....	200,000	.....
Continental	.....	75,000	.....



General view of coating yard at Palmer, Kan., where 20 miles of 20-inch pipe were coated by this new method for the Northern Natural Gas Co.

ENTIRE PIPE LINE
MACHINE-COATED ON-THE-JOB
by Coating Manufacturer

WE HAVE developed an on-the-job machine-coating method which not only assures more certain and more permanent corrosion-protection for oil and gas pipe, but enables you to secure the exact kind of job you want:

1. **Bitumastic Primer and Bitumastic 70B Enamel alone.**
2. **Bitumastic Primer and 70B Enamel with single or double, bonded or unbonded felt wrapping, applied in one continuous run.**

Pipe that is coated on-the-job can be delivered unwrapped to the right-of-way without appreciable damage to the coating. This was demonstrated on the Northern Natural Gas job as well as on hundreds of miles of harder-to-handle water lines (as large as 78" dia., weighing 12,000 lbs. or more per length). Electric holiday detector is used in yard and field to insure perfect application before the line is field wrapped or unwrapped line is back filled.

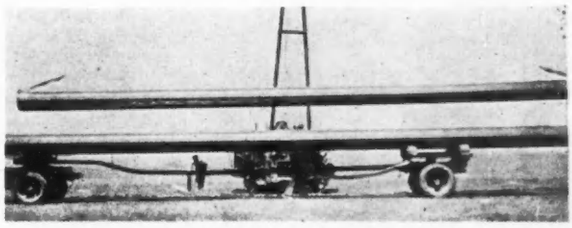
Coating field joints is also included in our contract—freeing the laying contractor from any attention to coating application, assuring him against suffering delays . . . and placing undivided responsibility for yard and field coating upon the only manufacturer whose products have been made long enough to prove their dependability.

Bitumastic has been protecting pipe and other metal surfaces for over half a century. Bitumastic 70B Enamel—the result of improvements in the basic formula—has greater flexibility . . . unusual resistance to soil stress (in spite of this flexibility) . . . greater resistance to expansion and contraction of the pipe . . . much greater adhesion . . . better ability to withstand handling abuses—and the time-proved Bitumastic ability to withstand corrosion. It is the ideal coating material for oil and gas pipe protection.

And we will set up yard shops anywhere to apply it with our modern economical, on-the-job machine-coating method.

NO OTHER PIPE COATING MATERIAL HAS BEEN IN USE AS LONG AS BITUMASTIC NO OTHER EQUALS ITS PERFORMANCE RECORD

THERE IS NO SUBSTITUTE FOR EXPERIENCE



Unwrapped pipe arriving at field in perfect condition.

Features of This New On-The-Job Machine-Coating

- **Yard shops set up near right-of-way.**
- **Pipe coated well in advance of laying needs. A reservoir of coated pipe is customary. Therefore, contractor suffers no delay.**
- **No field hazards; minimum weather delays.**
- **No waste of coating material; no drips, runs or festoons.**
- **Only one run through machine for coating and wrapping.**
- **Double checked; holiday detected in both yard and field.**
- **Coating field joints included in contract**

GENUINE BITUMASTIC PRODUCTS ARE USED

Coating fire bend. Applying unbonded felt wrapper in field.

Also Manufacturers of INDUSTRIAL PAINTS for All Exterior and Interior Plant Surfaces

WAILES DOVE-HERMISTON CORPORATION

BOSTON PHILADELPHIA CLEVELAND CHICAGO TULSA SAN FRANCISCO LOS ANGELES

17 BATTERY PLACE • NEW YORK, N. Y.

OKLAHOMA FIELDS

Will drill plugs and test Grant County wildcat.

* * *

Seminole County test may contribute new field.

* * *

Carter may have new oil field in Stephens County.

Oklahoma City.—Carter Oil Company's Crisman 1, C WL NE SW 16-25n-3w, southeast of Lamont, Grant County wildcat test that had 51 gravity oil in Wilcox sand topped at 5400 feet, is still the ranking interest well in the northwest sector of Oklahoma. Plugs are to be drilled and a test made about the first of the week. Depth is 5403. Structural conditions in the vicinity of the test are indicated to be anticlinal nosings, with relatively minor closing. It is believed that the well is located at the apex of one of the more prominent features.

Extension Calls for Drilling

The extension of Lucien field into northern Logan County has counted another completion, and from its initial production, estimated at 3800 barrels per day with a large volume of gas, more drilling in the sector is to be expected. The completed well is W. R. Curry et al's Schlopp 2, SEc 32-20-2w, producing from 5002 feet in Wilcox sand. Offsetting the same firm's Schlopp 3 to the east, Stanolind Oil & Gas Company and Amerada Petroleum Corporation are spudding Pfeiffer 9, NE SW SW 33-20n-2w. Mid-Continent Petroleum Corporation's Bulling 1, SE NE NE 5-19n-2w, below 4900 feet, will be an early completion for the pool.

Carter Oil Company's Hall 1, NW SE SW 27-10n-2w, Moore field, had salt water in Wilcox sand at 7324 feet and was unable to complete as an oil well at that depth. The well is being plugged back to the Simpson section for a test of this strata. First indications were that this well would be a Wilcox producer when cores showed saturation.

In the Langston sector of eastern Logan County, Sinclair Prairie Oil Company's Ford 1, SW NW SE 12-17n-1w, set packer at 4912 and tested a hole of fluid, finding 3500 feet of oil and 1400 feet of water in the hole. Wilcox sand was topped at 5037. The well is shut down.

Water well 11 miles east of Claremore making gas

Tulsa.—Workers returning to a water well 50 feet in depth being dug at a point about 11 miles east of Claremore, Rogers County, Oklahoma, were surprised to hear natural gas roaring from the excavation. Some oil was also showing. The location of the well is in an area of very shallow and erratic oil and gas production, most of which is from shales and sands of the Cherokee series.

Seminole County wildcat blows out while bailing

Tulsa.—Late in the week, Gillespie & Moore's McBride 1, NE SW SW 20-6-7e, southeastern Seminole County, blew out while being bailed down to 2745 feet, where casing has been cemented for a test. Mud, oil and water was sprayed when the blowout occurred, some oil and distillate being made after the hole had cleaned itself. Although the pressure may be from the bottom through a ruptured plug, it may be that the indicated production is coming from higher shows passed up as the well was deepened from 1800 feet.

In Haskell County, Continental Oil Company et al's Ferguson 1, SW SE NE 33-8n-20e, on the Kinta anticline, was still drilling Cromwell sand at 6081 feet and proceeding slowly. No report of further oil showing has been received. The test is considered the most important in the eastern half of the state. It is on the most prominent anticline in the region, one that has previously been productive of large volumes of natural gas. The present test was located by geophysical survey based upon surface geology.

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Wildcat Shows In Cromwell

Carter Oil Company's Claytor 1, CWL NE SW 27-2n-9e, Coal County wildcat, picked up good shows in Cromwell sand at 4750 feet after topping the formation at 4737 feet. The hole is being deepened.

Magnolia Petroleum Company's McMoran 1, SW SW NW 32-11n-5e, a wildcat that may be opening a new pool in northern Pottawatomie County, swabbed 160 barrels from Wilcox sand at 4853 feet. During the 15-hour test no water was showing and the crude tested 29 gravity. A 10-hour continuation of the swab increased the production to 302 barrels, an increase of 142 barrels. However, during the last eight hours of the test the well was cutting 50 percent water.

In the same region, south of Olympic, in extreme eastern Seminole County, The Texas Company's Cox 1, NE NW NW 23-9n-8e, is coring Wilcox sand below 4352 feet. Top of the strata was cut at 4345 feet.

Oklahoma District Oil & Gas Company's Beeler 1, NEc SW 7-7n-14e, Pittsburg County wildcat test, picked up a stray sand below the Wapanucka lime and obtained a considerable showing of gas. The well is to be deepened and another test made.

A Hughes County wildcat, Carter Oil Company's Hamilton 1, CW½ NE 33-4n-9e, after plugging back from total depth of 6177 feet, is testing and swabbing about 50 barrels at 5990 to 6005 feet.

C. W. Roodhouse et al's Booth 1, SE NW SE 20-2n-6e, west of Fitts, is swabbing about 60 barrels per day after plugging back to 4400 from the previous total depth of 4966 feet.

Another peculiar condition has been found in Fitts pool of Pontotoc County. Magnolia Petroleum Company's Metropolitan Life Insurance 36, SE NE SW 27-2n-7e, near the north edge of the field, missed Hunton lime entirely and topped Viola at 3660 feet. Atoka lime was penetrated at 2510 feet. The well is shut in at present.

Stephens County wildcat probably will acidize

Ardmore.—Carter Oil Company et al's Harley 1, C NE NE 24-2s-4w, Stephens County test that is holding the eye of southern Oklahoma interests, is being prepared to bail down and clean out. The well will probably be acidized after drilling plug. A test on this well may prove a new pool if reliance is placed on encountered showings. Depth of the well is 8175 feet. Seven-inch casing is cemented at 5391 feet. Location of the test is south of the Milroy production and west, across the Carter-Stephens County line, from Fox pool.

Doyle Area Active

The Doyle area of Stephens County continues to hold the limelight so far as completions are concerned.

When plugs were drilled late in the week and a test made, Helmerich and

Payne's Wade 1-A, NE SE NW 12-1n-5w, in the newly active Doyle area of Stephens County, southern Oklahoma, showed as a gasser making an estimated seven to eight million cubic feet from 3731 feet in Deese sand.

It was expected that this well would be a crude producer. Later efforts may show a recompletion for oil.

The second completion for the pool, Helmerich & Payne's Wade 1-B drilled in after plugs were cut at 3835 feet, on top of the Deese pay strata and made 435 barrels the first complete 24 hours of test, cutting some water. Later, the water thinned out, the oil increased to approximately 500 barrels, and the production was accompanied by more than 1,000,000 cubic feet of gas.

Old Wildcat Flows

Stanolind Oil and Gas Company and Amerada Petroleum Corporation's Westheimer 1, SW SE SW 27-6s-2e, old Love County wildcat that found good shows but that failed to make a commercial producer, was recently opened for 17 hours and made 204 barrels. A day later the well made five barrels, and the following day 63 barrels before going dead. It is not considered probable that this test will be made an active producer.

Consolidated Gas Company's Kinsley 1, CNE SW 10-9n-25w, near Erick, Beckham County, is drilling dolomitic lime below 3400 feet. Some crude is produced in the county, but efforts to open a major pool have been failures in spite of encouraging surface indications. The area has been proven as an important gas reserve.

Success of Graham is example of persistence

Ardmore.—Four drilling offsets will determine further development around the wildcat producer, Graham 1, C SW SW 12-1n-5w, Stephens County, completed by Helmerich & Payne in June. The well blew in as a gasser while shut down at 5000 feet in anticipation of successful negotiations to drill deeper. After getting the well under control, a series of plug-back and perforation experiments were carried on until a perforation at 3785 feet brought gas into the hole. Perforations at 6-inch intervals were continued to 3789½ feet. Oil started coming into the hole from these shots.

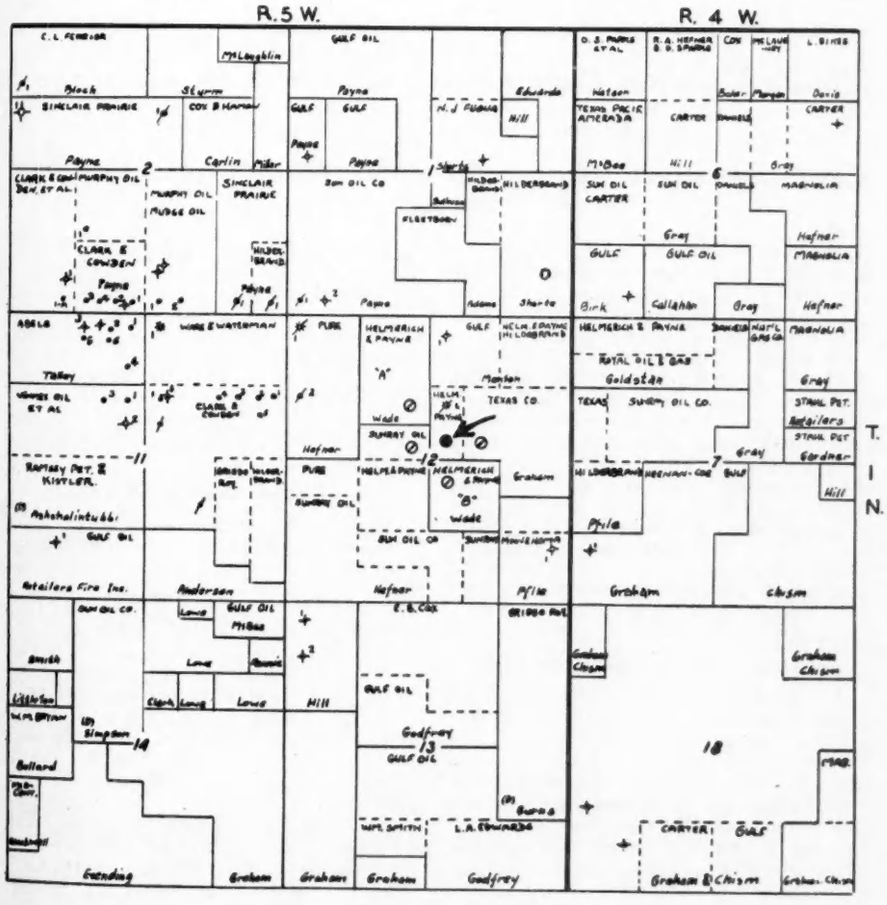
Since completion, June 23, the well has been producing in excess of 300 barrels daily. When it has accumulated 15,000 barrels as its discovery right under regulations of the Oklahoma Corporation Commission, it will be restricted to 100 barrels daily, the maximum granted wildcat strikes under proration regulations.

Oil is coming from a sand in the Deese member of the Glenn formation, a consistent section of the Pennsylvanian rocks of Southern Oklahoma. The member is found throughout this part of the state and has extreme thickness in many places. Its sands, however, are erratic in that some pinch out rapidly and do not have uniform thickness, even when found over a wide area.

Sands within the Deese member are responsible for the output of many of the Southern Oklahoma pools. Most of those north of a line between the Hewitt and Healdton pools, Carter County, have drawn either all or part of their output from sands in the Deese. Deeper production at Healdton is from the Deese. At Hewitt geologists are not positive that production is of Deese origin, but many consider it so.

Among the other pools now producing from the Deese are County Line, Fox, Sholom Alechem, Tatums, Tussey and Wildcat Jim. The deep wells completed in the Cement pool last year are within the Deese section.

Oklahoma oil men eagerly await developments at four offsets to Stephens County's latest strike, Helmerich & Payne's Graham 1, SWc NE 12-1n-5w, southeast of the old Doyle pool. Plans at all wells include taking cores and samples from top tobottom, providing a basis for correlation sorely needed in southern Oklahoma. Graham 1 produces from a sand in the Dees series at 3803 feet. A log showed 1172 feet of sands in the series, found at various levels.



Nearest Production Is Doyle

The Deese member is considered identical to the Strawn series of Central West Texas. Its designation in Oklahoma came about because of its outcrop in the Arbuckle mountains at Deese, a small town.

Nearest production to Helmerich & Payne's Graham 1 is in the old Doyle pool in Township 1 north and Range 5 west, Stephens County. Oil production in the Doyle pool is from sands from 850 to 1250 feet deep. These are not considered of Deese correlation. Around 3720 feet the Doyle pool produces gas, and it is possible that this comes from a sand within the Deese. This pool was discovered in 1922. Its wells were small in output and the field of small area.

Only further drilling can determine whether the Graham wildcat is on the dome that influenced the shallower production at Doyle.

An interesting sidelight of the well is that the test became a gas producer while shut down and the hole mudded in while negotiations were under way to drill deeper. The block was assembled by Joe Wrenn and Ken Leard. Acreage was sold to The Texas Company and Gulf Oil Corporation, and a drilling contract let to Helmerich & Payne, Tulsa. The contract called for a test of 5000 feet. A geologist was present during the drilling, and samples were taken frequently.

Oklahoma wildcats active

In Oklahoma, Atoka County has two interesting locations: C. M. Sheldon and Gardner Petroleum Company's Lee 1, NE NW SW 2-4s-10e, and A. L. Larson's Mason 1, SW SE SE 35-1n-14e. There is no major production in the county.

In the extreme southeastern corner of the state, Wilcox Oil & Gas Company added another to the list of McCurtain County failures when they found a hole full of water at 1380 feet in what they believed Trinity series.

Erle Halliburton et al's Bagwell 1, SW NE NE 30-3s-15e, Pushmataha County, an outpost location, found encouraging shows in sand strata above 3650 feet. Further news can be expected from this

well. In the same area, Haskell and Pittsburg Counties have important tests.

Directly across the state in Greer County, J. I. Medlin's Broudie 1, NWc 5-6n-20w, is rigging up rotary. Very little is known relative to subsurface conditions here other than that the area is generally faulted and irregular. Some production is obtained from granite wash in the county.

Two rank wildcats are spotted in Washita County, these being L. B. McWhirter's Fee 1, NW SW SW 34-8-19w, at 1810 feet, and John Koberg's Harms 1, NW NW NE 6-10-16w, drilling below 4200 feet. Neither of these wells is adjacent to production or on traced trends.

Major County of northwest Oklahoma marks E. V. Parson's Patzkowsky 1, C NW¼ 10-20-11w, a rig at this time, as an important location in the basin. Only a very slight show is necessary to lead to active drilling as major interests have been closely following the development of geological control on this area.

OKLAHOMA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CADDO COUNTY—		
Magnolia, Lackey 8, se nw nw 11-5n-9w	50	4010
CARTER COUNTY—		
Sun, Arrington 10, ne ne nw 8-4s-3w	*	1842
CLEVELAND COUNTY—		
Sinclair Prairie et al, se sw ne 21-10n-2w	200	7283
COMANCHE COUNTY—		
Wichita Oils, Incorp., School Land 8, cne ne se 20-2n-10w	*	888
CREEK COUNTY—		
R. K. Huey, Wilson 2, nw sw ne 18-14n-9e	20	2353
Berry et al, Ingalls 2, nw se se 24-17n-7e	25	2520
C. F. Mauch, J. E. Barnes 1, se se se 18-17n-8e	*	1116
GARVIN COUNTY—		
Cox & Hamon, Harris 4, ne sw nw 32-1n-3w (pb 3125)	*	3138
GRADY COUNTY—		
Texas, Thelma Clark 1, ne ne sw 8-3n-5w	*	1928
HUGHES COUNTY—		
Philaine, Campbell 1, ne se sw 20-7n-8e (pb 2993)	52	2996
KAY COUNTY—		
Black Gold Oil Co., Colley 2, sw sw sw 25-28n-4e	*	2187
KIOWA COUNTY—		
E. A. De Bolt, Burnett 1, nw se nw 30-7n-20w	10	983
LOGAN COUNTY—		
Phillips, Pfeiffer 4, nw sw ne 4-17n-2w	62	5133
MARSHALL COUNTY—		
Stewart & Smith, Chestnut 1, ne ne ne 23-8s-5e (pb 760)	8	815
NOBLE COUNTY—		
Tide Water, Shaffer 5, ne se sw 21-23n-2w	2869	4346
Shaffer 6, se se sw 21-23n-2w	2472	4356
OKFUSKEE COUNTY—		
Shock, Fields 2, se ne ne 16-14n-11e	485	2411
W. B. Pine, Loce 1, nw nw ne 28-10n-11e (pb 2880)	31	2884
OKMULGEE COUNTY—		
Eagle Picher, Henry 1-A, ne nw se 27-12n-12e (pb 2470)	2	2712
Hennessey, Calloway 7, c nw se 33-12n-12e	*	1475
Tom Newman, J. Byrd 5, cel nw se 25-12n-13e	*	1355
Anthony, Anderson 1, se ne sw 33-12n-14e	*	655
Martin, Fields 2, se nw nw 16-14n-11e	12	3450
Acme, McIntosh 1, nw nw nw 29-14n-11e	*	2488
D. W. Howard, Rentie 1-A, nw se ne 18-14n-15e	*	1670
OSAGE COUNTY—		
Midco Oil Corp., 2, se sw ne 18-22n-10e	*	1981
A. H. Pittigrew, 8, nw sw se 11-23n-11e	5	1540
F. A. Haver, 10, nw se sw 16-23n-11e	5	1800
Powers & Quintin, 10, sw se se 26-24n-8e	50	2185
H. C. Zelner, 3, ne nw sw 26-27n-11w	5	1038
PONTOTOC COUNTY—		
Deep Rock, Garrett 1, ne ne se 3-1n-7e (pb 4600)	210	4625
Blackstock, Thompson 1, ne ne ne 4-1n-7e (pb 4123)	106	4591
Thompson 2, se ne ne 4-1n-7e (pb 4420)	29	4600
Continental, McCarty 6, sw se nw 12-1n-7e	¶10	2149
Patsy, Magnuson 1, sw se se 23-2n-7e (pb 4187)	*	4785
Phillips, Bates 5, nw se nw 26-2n-7e	9692	4321
Simpson, Bates 2B, sw nw nw 26-2n-7e	101	2645
Magnolia, Burris 11, se ne ne 28-2n-7e	225	2590
Burris 12, ne se ne 28-2n-7e	259	2565
Moore, Schauers 7B, se se nw 29-2n-7e	1762	3655
Woodroff 4A, nw nw se 29-2n-7e	263	2640
Southern Oil, Young 1, ne ne se 17-3n-7e	*	2380
Benedum-Trees, Burk 3, sw sw nw nw 33-5n-5e	*	2614
Denver P&R, Risenhoover 2, se ne ne 14-7n-4e	355	3385
POTTAWATOMIE COUNTY—		
Prod. Inc., Cardwell 4, nw sw nw 15-7n-4e (pb 3540)	50	4180
Olsen, Junk 3, sw ne se 32-11n-4e	105	4416
Stanolind-Amerada, U. R. Rushing 4, nw sw se 32-11n-4e	150	4476
SEMINOLE COUNTY—		
Francis, Cravins 1, se se sw 13-5n-5e	227	2531
Lynch, B. Swan 1, nw nw ne 24-5n-5e	65	2815
Rodgers & Rodgers, Judy 2, sw sw sw 5-6n-8e (pb 2912)	20	2917
I. Troup, Wright 1, sw nw ne 32-7n-6e	460	2960
Pittsburg P&S, Fish 4, se nw nw 20-7n-8e	130	2940
W. C. McBride, Hulsey 1B, sw sw nw 8-9n-7e	96	3514
Pioneer, M. Joseph 1, nw ne ne 36-10n-7e	72	3614
STEPHENS COUNTY—		
Westheimer & Neustadt, Stephens 1, sw sw sw 3-2s-5w	¶3.5	850
TULSA COUNTY—		
A. C. Saint, Wadworth 1, sw ne ne 31-17n-13e	*	1940
Superior Oil Co., Easley 8, se nw nw 7-19n-10e	30	1169

*Failures; †Junked; ¶Million cu. ft. gas.

KANSAS FIELDS

Bridgeport Machine's wildcat flows over rig.

* * *

Phillips' Barton County test looms as pool opener.

* * *

Lemmick starts wildcat 60 miles from production.

Wichita. — Kansas operators added new pools and equally important extensions to productive areas during the past week. Late reports indicate possibility of adding other areas.

Bridgeport Machinery Company's Habiger 1, NW NW NW 5-18-10w, near the Rice-Ellsworth County line was reported high on structure early in the week, and when the Kansas City lime was drilled the well came in to flow over the rig. The company has shut in the test to erect tankage, and is expected to test next week. Depth of the well is 3105 feet, still in the lime. From indications it is located on a direct trend between Stump and Bloomer pools and is expected to be a joining producer.

Wildcat Southwest of Trapp Fills

In Russell County Shell Petroleum Corporation's Batt 1, SE SE SE 35-15-14w, 1½ miles southwest of Trapp pool, has filled 2100 feet from Siliceous lime at 3320 feet and is bailing and testing as the week closes. The lime was topped at 3297 feet. There is nothing to indicate whether this evident producer is an extension or the discovery well of a new pool.

K. D. Holland's Brothers 1, SEc 12-21-7w, one mile from production in Hauschild pool of Rice County filled 3000 feet from conglomerate topped at 3473 feet. Depth of the well is 3476 feet. Good gas volume was showing with the crude. Hauschild now includes Theede and Saxman, formerly considered individual pools. A dry hole at 3567 feet has been completed one mile north of the new producer.

Barton County Strike

Phillips Petroleum Company's McClanahan 1, NEc SE 7-16-13w, Barton County, is showing as a pool opener at 3377 feet in Siliceous lime. During a six-hour swabbing test it made 375 barrels. The well is 1½ miles directly south of Trapp pool of Russell County.

Another strike was made during the week by J. J. Hall, a Denver, Colorado operator, whose W. E. Smith 1, 14-12-16w, south of Fairport, Ellis County, was completed for 591 barrels of oil. Production is from Siliceous lime at 3367 feet.

An important extension well was completed in the Otis oil and gas field on extreme eastern Rush County. Carter Oil Company's Hergert 1, NEc SE

26-18-16w, southwest of major production, filled in 45 minutes from 3553 feet in Regan sand, the pool's productive stratum. Tankage is being moved to the location for a test.

Completing Extension Well

A Barton County extension well, one mile from Kraft pool production, is being completed in Siliceous lime at 3338 feet. The well is Republic Natural Gas Company's Bloomer 1, NE NW NW 14-11-17w. The hole filled 2700 feet from the lime prior to testing.

A location on a semi-wildcat nosing proved for a much better producer than was expected when Derby Oil Company's Lehmann 1, NW 13-22-2w, northwest of Sperling pool of Harvey County, showed for more than 1500 barrels per day from Hunton lime. Oil tested 36 gravity.

A location has been released that will be followed with interest. The stake is on what is hoped will develop into a direct trend from Burrton Chat production. A. L. Ballard and R. J. Wallace have acquired the acreage and made the location at the center of Section 7-25s-4w, Reno County. The well is about one mile west of Haven and near the compressor station of Panhandle Eastern Pipe Line Company.

Pratt County's interesting wildcat that showed for oil and gas in lime that arbitrarily was called Simpson by operators is being further tested with result probably available at an early date. A plug at 4305 was being drilled with hole bottomed at 4310 feet. Shows were encountered between 4293 and 4309, prompting the tests.

The westernmost test in Kansas, Denver Producing and Refining Company, Barnsdall Oil Company and W. J. Sherry's Porter 1, south of Syracuse in Hamilton County, is drilling below 6438 feet without anything showing. H. F. Wilcox Oil and Gas Company is starting a wildcat test in Wallace County, western Kansas. Location has been made for Parker 1, SEc 9-11s-40w. A number of surface structures are known to exist in this area.

Lemmick Oil Company of Tulsa, recently organized, has started a rank wildcat about 18 miles northwest of Topeka on a structure mapped by surface geology. The location is more than 60 miles from nearest oil production, while gas is produced from minor highs in the vicinity of Kansas City, Kansas. The test is located in NEc 26-9s-14e, and is drilling at 150 feet with siliceous lime, deepest expected pay, probably around 2700 feet.

A strike in the eastern shallow sector is recorded for H. L. Mourer and associates in Draper 1, NE NE NW 10-24-17e, in the Neosho Falls district of Woodson County. The wildcat found the top of Mississippi lime at 1184 feet, cut the formation to 1203 feet, where the first break was topped. Three and one-half feet of the brown, sandy lime were drilled and the hole filled. Operators are to pump down the first of the week and acidize. National Refining Company's Schwantes 1, NW SW NE 16-32-3e, picked up in Kansas City lime at 2670 feet after topping the formation at 3517 feet. The same interest's McCullough 2, a southeast location in McCullough pool, Butler County, looks like a two-location extension with a test due in Wilcox topped at 3176 feet.

A number of natural gas transmission systems local to southeast Kansas areas are having difficulty in making economic connection to new production. Depletion of older areas has led to spasmodic development of minor gas producing sectors and to new connections and gathering systems. Most of the 15 counties bordering eastern limits of production have been affected, and the search for untouched local reserves is widening.

Many Wildcats Drilling

A Chase County test in 13-22-9e, west of Pixlee production and north of the old Teeter pool, is drilling at about 2600 feet, hunting production above the buried Granite Ridge, a local basin feature. A machine test is to be started southwest of here in Butler County by Rex & Morris in Section 35-23-3e. This area is considerably deeper and in semi-proven territory.

Seven wells are drilling in Chautauqua County in areas re-examined recently.

In Marion County two rank wildcats are drilling below 2200 feet, both on surface indicated structures.

Two tests are underway in southwestern Osborne County in a region northeast of the Central Kansas Uplift. The most interesting of the two from the wildcatter's standpoint is that in 11-8-14w, north of the other test. The well, J. E. Waldron's Neusechwanger 1, is spudded. The test further to the south, being drilled by Atlantic and Chaddox, is at about 1300 feet.

Pratt County is in the limelight through oil and gas shows in Simpson between 4293 and 4310 feet as found in Atlantic Refining Company. Skelly Oil Company and Empire Oil & Refining Company's Runyon 1, SW NW NE 11-27-13w, near Iuka. The well will be deepened to make a complete test and may be reported in the field notes under the Kansas section. If this test proves successful it will make important a number of surface structures apparent in the area which previously have been considered without direct subsurface relationship.

KANSAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BARTON COUNTY—		
Armer et al, Ainsworth 3, nw ne se 33-16s-13w	1737	3386
Eason Oil, Ainsworth 1, ne se se 33-16s-13w	745	3399
I. T. I. O. Hogan 2, sw nw sw 34-16s-13w	810	3376
Stanolind, Rieman 2, nw sw nw 34-16s-13w	1889	3374
C. Arensdorf 1, ne ne sw 2-20s-11w	1229	3304
Hilligoss, Isern "B", ne nw ne 12-20s-11w	209	3286
I. T. I. O., Sessler 1, ne se sw 24-20s-11w	2819	3255
Magnolia, Roetzel 10, ne nw se 24-20s-11w	1449	3245
BUTLER COUNTY—		
Empire, Lathrop 27, ne sw nw 17-23s-4e	423	2003
Roth-Faurot, King 3, ce½ ne sw 17-24s-4e	*	2287
Polhamus, Semisch 6, se sw ne 5-28s-7e (pb 2737)	35	2739
CHAUTAUQUA COUNTY—		
F. Craver, Floyd 1, nw sw se 26-33s-12e	*	2112
Miller et al, Wininger 1, ne ne ne 2-35s-9e	¶2.5	1935
Scott et al, Martin 1, se sw nw 17-33s-13e	*	2110
Sinclair Prairie, C. Casement 14, nw nw sw 33-34s-11e	*	2070
COFFEY COUNTY—		
Henderson Oil, McCartney 3, ne se se 14-23s-14e	*	1653
COWLEY COUNTY—		
Shawver, Mulkey 2, nw ne se 5-34s-3e	15	3320
ELLIS COUNTY—		
Vickers et al, Parker 1, cn½ ne nw 35-11s-16w	*	3395
Margay, Bemis "B" 7, se se sw 15-11s-17w	2012	3422
Empire, Bemis 9, se sw se 21-11s-17w	1496	3381
Ryan Consolidated, Bemis "C" 1, se se sw 21-11s-17w	2734	3410
Gulf, Koerner 1, ne ne sw 11-12s-18w	1571	3672
ELLSWORTH COUNTY—		
Phillips, Patzner 2, nw sw sw 30-17s-10w	1092	3311
Texas, F. A. Bemis "A", ne nw ne 28-11s-17w	2032	3391
GRANT COUNTY—		
Columbian Fuel Co., Alderman 1, c sw¼ 18-29s-35w	¶4.4	2715
GREENWOOD COUNTY—		
Oko Oil & Gas, Pinon 5, nw nw ne 27-33s-13e	*	1809
Landon, R. Johnson 7, nw se ne 25-24s-12e	25	1640
Katz Oil Co., Christy 2, ne ne se 12-26s-9e	75	1382
Western Kansas O&R, Taylor 1, se se sw 6-27s-12e	75	1897
HARVEY COUNTY—		
Simpson & Noble et al, Pierce 1, sw se ne 25-22s-2w	*	3620
Joan-Bar Oil Co., Zook 1, nw nw sw 36-22s-2w	90	2989
RENO COUNTY—		
Nat'l Pet. Co., Tucker 8, sw se nw 19-24s-4w	613	3380
Tabor & Coleman, Mueller 1, ne ne se 25-24s-5w (pb 3608)	*	3914
Carter et al, Bontrager 1, ne ne ne 26-24s-5w	*	3925
RICE COUNTY—		
Continental, Kimple 4, ne nw sw 30-18s-7w	1718	3172
Sinclair Prairie, Bolton 1, nw ne sw 31-18s-7w	789	3237
Continental, Kimple 4, nw se nw 25-18s-8w	926	3201
Davis et al, McFarland 2, nw nw nw 7-20s-9w	190	3300
E. V. Holland et al, Malone 1, se nw ne 19-20s-9w	15	3384
Tatlock, Bayer "A", nw nw ne 7-20s-10w	726	3311
Carlock et al, Oden 1, nw nw nw 5-21s-7w	2550	3333
Atlantic, Hopkins "B" 1, se ne sw 6-21s-7w	2394	3337
Grace Oil, Gussman 8, sw se ne 8-21s-7w	8252	3361
Garden & Haines, Stange 4, nw nw ne 16-21s-7w	1029	3373
RUSSELL COUNTY—		
J. J. Hall, E. Miller 9, nw sw sw 30-14s-13w (pb 2945)	334	3160
Phillips, Rex 3, nw sw sw 30-14s-14w	533	3221
Alva Billings, Herbel 2, ne se nw 35-14s-14w	1824	3193
Gulf, Ehrlick 8, sw se nw 1-14s-15w	1358	3102
Darby, Dumler "B" 4, sw se nw 11-14s-15w	1762	3065
Transwestern, K. Polcyn 2, sw nw nw 14-14s-15w	1333	3235
Carter, Detrick 1, sw sw sw 8-15s-13w	1542	2980
W. I. Southern, Boomhauer "A" 9, ne sw ne 30-15s-13w	2589	3253
Gulf, Hoffman 8, se se sw 31-15s-13w	1715	3312
Phillips, Hoffman 14, se sw se 31-15s-13w	3434	3336
Empire, Mai "A" 2, se se sw 24-15s-14w	1563	3338
Boomhaur 5, nw se ne 25-15s-14w	2173	3317
Coralena, Deines 4, se se ne 36-15s-14w	2643	3278
Boyle & Grosman, Steinert Est. 1, ne se nw 34-15s-15w	*	3460
SEWARD COUNTY—		
United Prod. Co., Central Life Ins. Co. 1, cne 7-31s-34w	¶2.83	2680
STAFFORD COUNTY—		
Stanolind, Abe Francis 1, ne ne nw 26-22s-13w	*	3846
TREGO COUNTY—		
Watchorn, Lemke "A" 1, cse sw 15-11s-23w (otd 3503)	656	3510
W. I. Southern, Latimer 1, nw nw se 19-15s-22w	*	4853
WOODSON COUNTY—		
Jones et al, Figge 1, nw se nw 27-23s-14e	*	1700
Woodson P. L. & Prod., Winterscherd 8, sw sw se 6-24s-14e	100	1717

*Failures; †Junked; ¶Million cu. ft. gas.

EASTERN FIELDS

Patoka is extended two miles; Clay City one mile.

* * *

Seven rigs active in Woodhull gas field, New York.

Pittsburgh. — Extensions of Patoka field, Marion County, and the Clay City field, Clay County, stood out as the important developments in the Illinois fields last week.

Adams Oil & Gas Company's test on the A. Rogier farm, NW SW Section 3, Township 3n-1e, Carrigan Township, attained estimated production of 200 barrels daily. The well is 2 miles south of Patoka. The Clay City extension was by Wicklund Development Company on the Sanford farm, SE SE NW Section 29, Township 3n-1e, Clay Township, where a saturated oil sand was encountered at slightly more than 3000 feet. The test is a mile and a half northwest of production.

National Consumers Oil Company's test on the Minnie L. Jackson farm, Marshall Township, Clark County, which was stopped a week ago when a showing of oil was found at 2388 feet, has resumed in search of a more profitable formation. It will be drilled to 3000 feet if necessary.

Belmont Oil Company is resuming on the Martin Dooley farm, Belmont Township, Iroquois County. It stopped last year at 512 feet and is the only test active in this Illinois county.

Bond County, inactive for some weeks, will be the scene of a test to be drilled on the Louis Siever farm, 1½ miles southwest of Greenville. Sunflower Oil & Gas Company is to drill the first test in Hamilton County during the present activity—on the Edward F. Clark farm near Dahlgren.

The new Woodhull gas field, Woodhull Township, south central Steuben County, New York, confirmed a week ago with completion of New York State Natural Gas Company's test on the Earl Calkins farm, continues to hold interest in the New York-Pennsylvania deep sand gas area. Seven operations are in progress, deepest of which is S. J. Brendle's test on the E. H. Ackerman farm, drilling at 3225 feet.

On the Pennsylvania side, Potter County continues to lead in operations. Potter Development Company is having more trouble with its wildcat test on the Crawford farm, Keating Township, down again with a fishing job. This operator is drilling at 5550 feet on the May C. Haupt farm, West Branch Township, and fishing at 5162 feet on the Ida Scoville tract, Harrison Township. French et al are below 4890 feet on the George Burd farm, Allegany Township; Penn York is drilling at 4350 feet on the Maude Reynolds farm, Harrison Township, after passing the Tully lime at 4241-97 feet; Godfrey L. Cabot, Inc., is drilling at 3171 feet on the A. Bean farm, Harrison Township and is fishing at 2778 feet on the Rufus Johnson farm, Bingham Township.

The wildcat on the Van Scoy farm, Hamilton Township, McKean County, was deepened more than 700 feet last week by H. C. Drilling Company and was drilling below 1350 feet as the week closed.

In West Virginia six new locations were recently staked in Poca district: United Carbon Company on the Garfield Spencer farm; Columbian Carbon Company on the Minnie A. Boggess farm and on the Nora Hamilton et al tract; Joe Rubin on the Carney Heirs tract; B. F. Andrea on the F. M. Ray farm, and the United Fuel Gas Company on the Mamie A. Ray farm.

EASTERN FIELDS
Completions

OHIO

Company, Well and Location	Init. Prod. Bbls.	Depth
ATHENS COUNTY—		
Charles D. Mosher et al, Lena S. Bean 14	2	143
A. D. Townsend et al, Arthur Konaski	1	1720
Ohio Fuel Gas Co., Sunday Creek Coal Co. 156	*	1253
BELMONT COUNTY—		
Richland Developing Asso., J. R. Lochary 12	¶.20	2075
Barnesville Development Co., Lindley P. Bailey 1	¶.19	1200
FAIRFIELD COUNTY—		
Lancaster City Gas Works, Susan Miller 2	¶.10	2015
HOCKING COUNTY—		
Preston Oil Co., Sunday Creek Coal Co. 1643	20	3480
Griffin Producing Co., R. C. Park 2	¶1.36	2964
LICKING COUNTY—		
Stricker & Armbruster, G. E. Patton 9	7	670
Early & Davis, Charles Lothes 1	7	733
Hope Construction & Refining Co., Delphia A. Elliott 4	3	637
Delphia Smith 2	2	680
MEIGS COUNTY—		
Meigs Development Co., Lafayette Romine 5	¶.10	820
MONROE COUNTY—		
F. S. Paulus et al, Mary Eckerman 6	1	1449
NOBLE COUNTY—		
L. A. Patten, Geo. Warren 11	*	960
PERRY COUNTY—		
Ohio Fuel Gas Co., Sunday Creek Coal Co. 6445	¶.19	3640
Allegheny Oil Co., N. Rodgers 1	*	1110
PUTNAM COUNTY—		
Brown et al, W. B. Geirhart 1	60	1536
WASHINGTON COUNTY—		
Decker & Cisler, John Duval 6	¶.13	1150
W. W. Waterson, E. R. Evans 16	*	501
Ross et al, James M. Cooper 16	*	940

WEST VIRGINIA

Company, Well and Location	Init. Prod. Bbls.	Depth
BOONE COUNTY—		
Pond Fork Oil & Gas Co., Cole & Crane 28	¶.14	2312
BRAXTON COUNTY—		
Pittsburgh & West Virginia Gas Co., Parkersburg Mills Co. 7596	¶	2534
CALHOUN COUNTY—		
Lyle S. Ayers et al, H. G. Brannon 2	¶2.7	2347
Hope Natural Gas Co., Tell McDonald 7781	¶.29	2067
CLAY COUNTY—		
South Penn Oil Co., O. D. Stockley 114	5	1740
Hope Natural Gas Co., Mary Wetherell 7778	*	1976
GILMER COUNTY—		
Massey & Jarvis Driling Co., Carl McGinnis 2	¶1.0	1485
KANAWHA COUNTY—		
Columbian Carbon Co., H. R. Glass 1	¶1.5	1697
MONONGALIA COUNTY—		
J. I. Eddy et al, O. P. Michael 1	¶.21	1930
Convex Glass Co., C. H. & Dora Brand 2	¶.07	3143
RITCHIE COUNTY—		
J. W. Jones, West Virginia Oil Co. 29	*	500
James Elder et al, I. M. Jackson 2	¶	2300
UPSHUR COUNTY—		
Union Gas Corp., Lloyd Tolbott 1	¶.91	4228
WAYNE COUNTY—		
Kentucky-West Virginia Gas Co., L. Lester 1	¶.47	3310
WETZEL COUNTY—		
South Penn Oil Co., John McElroy 4	10	3242
Pittsburgh & West Virginia Gas Co., B. W. Peterson 1	¶.08	2210
WIRT COUNTY—		
Peter Silman, Peter Silman 3	*	971
WOOD COUNTY—		
South Penn Oil Co., L. B. & W. S. Williamson 13	10	2250

KENTUCKY

DAVIESS COUNTY—		
Gibson & Aukany, T. Church 2	40	1065
Ohio Oil Co., J. A. Weller 6	2	513
Rex-Pyramid Oil Co., Lonnie Cooper 1	¶1.52	784
HANCOCK COUNTY—		
Davis & Young, Alton Mason 3	10	650
Alton Mason 4	20	651
KNOTT COUNTY—		
Inland Gas Co., E. A. Hammonds 1	¶.88	3160
K. C. Kilgore 2	¶.15	3072
LEE COUNTY—		
C. E. Townsend, Andrew Combs 5	25	976
Marietta Oil Co., W. T. Smith 1	2	1138
OHIO COUNTY—		
George Stewart et al, E. S. Dunn 20	*	....
W. S. Hollingsworth, W. J. Heddon 1	*	536

ILLINOIS

CLAY COUNTY—		
Pure Oil Co., N. Mosely 1	166	3003
Oscar Poppe 1	1500	....
B. Travis 3	1000	....
CLINTON COUNTY—		
Adams Oil & Gas Co., Brammeier 1	*	1567
Newton et al, Frank Gross 2	*	1045
CRAWFORD COUNTY—		
Salvage Oil & Gas Co., W. S. McGrillis 5	10	1010
Dinsmoor Oil Co., W. E. Ewing 35	8	935
McDONOUGH COUNTY—		
Ohio Oil Co., R. J. Clark 16	10	461
MARION COUNTY—		
Adams Oil & Gas Co., Nattier 1	162	1432
Nattier 2	150	1447
Howell 1	150	1419
P. L. Majonnier 1	50	1448
Cypress Oil & Gas Co., C. Adams Lot 2	100	1454
Hempen & Burgess, H. Joliff 1	*	1655
WABASH COUNTY—		
Andrews et al, Jos. Jordan 6	4	1540
WASHINGTON COUNTY—		
Sunflower Oil Co., Morgan & Baldwin 1	*	1002
WAYNE COUNTY—		
Pure Oil Co., C. H. Billington 1	*	3273

PENNSYLVANIA

BEAVER COUNTY—		
South Penn Oil Co., Wm. Taylor 16	5	....
WASHINGTON COUNTY—		
Benedum & Trees, Mary Boone 1	*	3118
Union Gasoline & Oil Corp., W. C. Hazlett 2	*	3018
Emerald Petroleum Co., Robert White 1	*	3067

*Failures; †Junked; ¶Million cu. ft. gas.

NORTH AND WEST TEXAS

Large Wasson extensions may make it market factor.

* * *

Two structurally high Gaines County wildcats fail.

* * *

Goldsmith extension attempt is discouraging.

Midland, Texas.—Expansion of the Wasson field about 6¼ miles to the northwest into Yoakum County, and the promise of a separate oil producing area about six miles due north of this outpost looked promising late last week. Bohago Oil Corporation and Bond Oil Corporation's M. West 1, C SE NW Section 606, Block D, about eight miles west by north of four flowing producers in the Bennett field and on a north trend from the Wasson area, bailed free oil after coring to 5275 feet. First oil saturation was logged at 5121 feet, with an elevation of 3660 feet. Top of Yates was recorded at 3041 feet, and first brown lime at 4035 feet. Formation below casing seat at 5034 feet will be acidized. It is on a 960-acre block farmed out by Ohio Oil Company. Several majors made substantial contributions to aid in financing the test.

Denver Producing & Refining Company's J. A. Whittenburg 1, C NW NW Section 831, Block D. Yoakum County's first bid for a share of the production afforded by the Wasson structure, showed ample saturation to make a producer after acid in coring to 5015 feet, or 1399 feet sub sea. Tubing was landed at 4979 feet for a swabbing test.

Interval between this northwest outpost and the discovery producer of the Wasson field is being shortened by Phillips Petroleum Company and I. T. I. O. Company's E. C. Brand 1, SE SE NE PSL Section 55, Block AX, which swabbed 10 barrels oil per hour after using 5000 gallons of acid at 4927 feet, or 1342 feet sub sea. It is 1⅝ miles northwest of the discovery. Amon G. Carter et al's Sharp 2, SWc Section 47, advanced production to the southeast with an initial gauge of 1172 barrels of oil and 1,230,000 feet of gas after using 9000 gallons of acid in lime at 5000 feet, or 1465 feet sub sea.

Formation water above and at the base of the oil saturated zone has been tentatively established through series of tests with tubing packer on Amerada Petroleum Corporation's Matthews 1, NEc Section 417, Block G, about 1¼ miles southwest of the Wasson discovery. This outpost is bottomed at 5018 feet, or 1461 feet sub sea, and was acidized twice. Swabbing tests yield from 25 to 30 barrels fluid per hour, testing 50 percent water. It will make a small producer when the water has been isolated.

Extended West Also

A 3-mile west extension for the Wasson field commanded attention the past week. Amerada Petroleum Corporation's C. M. Armstrong 1, C NW NW Section 456, Block G, due west of its Matthews 1, logged oil pay at 5026 feet, or 1414 feet sub sea, and at 5032 feet tested 1/3 bailer oil per hour. It will be deepened through the oil zone to establish the water level, then plug back to acidize. Armstrong 1 topped the Yates marker at plus 577 feet, while Matthews 1 logged this zone at plus 582 feet, indicating comparatively little difference in structural position.

Relatively high structural position of two wildcats on the Jones ranch in northwestern Gaines County and possibly isolated from the Wasson field, failed to fulfill earlier forecasts of making producers. Argo Oil Corporation's E. H. Jones 1, C NE of PSL Section 2, Block A-7, unloaded at 5125 feet, or 1456 feet sub sea, and made 1½ bailers fluid per hour, 50 percent water, on 4-hour test. Top of Yates marker was logged at plus 594 feet. Continental Oil Company's Jones 1, 4½ miles south by west, failed to attain water shutoff in plugging back from 5156 feet, or 1506 feet sub sea, to 5020 feet. It is due to plug back again. The latter logged top of Yates at plus 510 feet.

Trend of production to the north of the Ogdon (Deep Rock) field, Andrews County's first producing area, will be explored by Gulf Oil Corporation's University 1-G, NEc NW Section 8, Block 14. Relatively high cash bonuses have been paid recently for leases on University lands in Blocks 13 and 14.

Two-mile southwest extension for the Goldsmith field, Ector County, south by Shasta Oil Company's K. Sands 1, NEc SE T&P Ry. Section 32, Block 44, T-1-S, did not look promising after drilling to 4255 feet, or 1071 feet without logging oil or gas. Top of Yates was logged at 2810 feet, or plus 374 feet, indicating a fair chance for production. A block of leases, centering about six miles to the northwest of this outpost is due to receive an early test, as Oil States Exploration Company is reported to be making a location in N½ of T&P Ry. Section 28, Block 45, T-1-S.

Ordovician proven to overlap regular zone in Sand Hills

San Angelo, Texas.—Extension of the Ordovician producing horizon 1½ miles east by south to overlap the regular oil zone in the Sand Hills field, Crane County, became assured when Loffland Bros. Company's J. B. Tubb-Gulf 3, NEc PSL Section 9, Block B-27, cored oil and gas saturation while penetrating the Ellenberger 89 feet to 5891 feet. Seven-inch pipe was cemented at 5722 feet, and production test is due early this week. This outpost for the deep zone developed an interesting geological condition in logging top of the Simpson at 5790 feet and first Ellenberger at 5802 feet, with an elevation of 2540 feet. The Simpson section thinned to 12 feet, while Gulf Oil Corporation's Waddell et al 5, nearest deep producer, logged 150 feet before reaching the Ellenberger at 5956 feet, or 3410 feet subsea. Tubb-Gulf 3 entered the Ellenberger at a point 148 feet higher structurally than the latter producer, which was completed earlier this month at 5971 feet rated at 8179 barrels of 45 gravity oil and 10,309,000 feet of gas daily on open flow gauge. It was given an allowable of 300 barrels daily.

Sinclair Prairie Oil Company et al's J. B. Tubb-Unit 2, NW NW SW Section 3, about ½ mile northeast of Waddell et al 5, revealed that the Ordovician zone may prove irregular through having logged top of Simpson at 5842 feet, or 25 feet lower than the big producer, and had not reached the Ellenberger in coring to 5951 feet. It has an elevation of 2552 feet.

New Delaware Pool

Discovery of a new Delaware lime pool in western Ward County appeared promising when Murjo Oil Corporation's Day Monroe 1, C of N¼ H&TC Ry. Section 210, Block 34, about 4½ miles east by south of production, showed gas and free oil in drilling to 4960 feet. Top of Delaware lime was logged at 4875 feet, with an elevation of 2674 feet. The sand section will be given a nitro shot, which is required by nearly all wells in this formation before commercial production is attained.

General Crude may have new field in Stonewall County

Abilene, Tex.—Development of production near the south line of Stonewall County and along a north trend from the Royston field, Fisher County, appeared promising when General Crude Oil Company's W. H. Bryan 1, Wm. Vardeman Survey 347, blew gas and water after using acid in lime at 4352 feet to loosen drill pipe. This wildcat showed oil and gas in cores at 4347-52 feet, with an elevation of 1679 feet. It is located on a 2566½-acre tract, being 2035 feet from southwest and 5402 feet from northwest lines of the tract, about 3 miles north and west

of the northeast corner of Fisher County. Production in the Royston field is from lime near the 3100-foot level. Casing will be run and a production test made when the drill pipe is recovered.

Three additional tests are nearing the oil horizon in the prolific Robinson field, Fisher County. Lewis Production Company's Morrow 2, east offset to the company's shut-in well, was drilling at 2200 feet. Magnolia Petroleum Company's Smith 1, northeast offset to production, was past the 2000-foot level, while Tide Water Associated Oil Company and Oil States Exploration Company's Waddell 1, east outpost, was drilling at 2150 feet.

Lewis Production Company's Morrow 1, previously reported as flowing at the rate of 388 barrels oil per hour on brief gauge from lime at 3544-49 feet, gauged 1651 barrels in 7 hours through tubing, and was allocated an allowable of 90 barrels, or the maximum for the area.

Disposal of Crude

No pipe line connections are available for Robinson, although negotiations are pending to route deliveries through Tide Water Associated Oil Company's stub line that connects with the small pool to the northeast, then with Shell Pipe Line Corporation, with the latter making the actual purchase. Otherwise oil sales will be restricted to tank trunk movement to skimming plants in the district.

Jess Hickey et al's Martin 1, Otho Miller Survey, Erath County, about 2 miles east of Desdemona, showed oil and gas from 1 foot of lime topped at 2835 feet and will cement pipe to test. N. D. Gallagher, Lawson et al's B. I. Terry 1, N. H. Kuykendall Survey, deep test on the Comanche County portion of Desdemona field, was underreaming pipe, with the hole bottomed at 4165 feet, to exclude water. Top of Ellenberger lime was logged at 3404 feet, with a little free oil and water at 3447-53 feet. Contract calls for a depth of 5500 feet in order to explore the lower Ellenberger.

WEST TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ANDREWS COUNTY (Wildcat)—		
W. G. Blanchard & H. J. Porter, Cox-Amerada 1	*	4800
C. L. Peters & A. Hargraves, J. Riordan 1	*	5013
COCHRAN COUNTY (Duggan)—		
M. S. Ingleright & E. E. Fogelson, N. H. Tarver-Duggan 1	260	5057
CROCKETT COUNTY (Wildcat)—		
R. H. Henderson et al, C. B. Haun 1	*	1303
ECTOR COUNTY (Goldsmith)—		
Atlantic Ref Co., H. E. Cummins 2-E	528	4250
T. P. Land Trust 6-A	1423	4264
Continental, T. P. Land Trust 2-B, sec 35	390	4275
W. H. Dunning Est., Scharbauer 7	1133	4218
Humble, C. Scharbauer 2-B	1422	4267
Landreth Oil Corp., C. Scharbauer 4-H	2616	4222
Ben F. Nysenwander, Jr. et al, C. Scharbauer 4	1277	4196
Shell, H. E. Cummins 2-A	643	4252
ECTOR COUNTY (North Cowden)—		
A. R. Eppenauer et al, T. P. Land Trust 2-C	341	4215
FISHER COUNTY (Robinson)—		
Lewis Prod. Co., W. L. Morrow 1	5500	3549
GAINES COUNTY (Wasson)—		
Continental, W. M. Moore 1	¶9.6 & 3000	4995
Amon G. Carter et al, J. R. Sharp 2	1172	5000
GLASSCOCK COUNTY—		
Continental-Group 1 Oil Corp., Settles 37-S	45	1327
Moore Bros. Corp.-Loffland Bros., F. A. King 1	*	3926
HOWARD COUNTY—		
Moore Bros. Corp., M. Quinn 1	*	3515
Superior Oil Corp., D. Roberts 38-B	412	1365
LOVING COUNTY (Mason)—		
R. A. Westbrook et al, M. Kyle 1	572	3980
PECOS COUNTY (Netterville)—		
C. W. Fowler Jr. et al, J. T. Netterville 1	419	2312
PECOS COUNTY (Pecos Valley)—		
M. H. Black et al, Pecos Valley 4	150	1610
E. M. Thomason Prod. Co., Pecos Valley 4	225	1632
PECOS COUNTY (Taylor-Link)—		
B. C. Mann et al, University 2	265	1649
PECOS COUNTY (Yates)—		
Humble, M. A. Smith 14-A	3240	1490
Ohio, Fred Turner 10, Tr. 1 (142½-ac)	47,448	1526
PECOS COUNTY (Wildcat)—		
Aero Gas Ref. Co., Johnson-Skelly 1	†	522
Tex-Mex Pet. Corp., S. Williams 1	*	2345
UPTON COUNTY (McCamey)—		
Cardinal Oil Co., Cordova Union 5-A	274	2309
Gulf, J. F. Lane 3-C	48	2252
Homestead O&G Co., M. C. Powell-Pure 6	674	2745
Rodman & Easter, E. S. Hughes 1-B	429	2219
Stanolind, A. S. Burleson 45	98	2350
M. C. Ulmer et al, A. S. Burleson 3	270	2252
Simpson & White, Cordova Union 1	*	2400
The Texas Co., Richard King 30	71	2464
WARD COUNTY—		
Cullum & Alexander, Buchanan-McDonald 1	232	2342
A. R. Eppenauer et al, University-Stanolind 6	1221	2717
Standard of Texas, A. B. Gordon 41	250	2525
WINKLER COUNTY (Bashara)—		
W. H. & W. D. Wilson et al, Grant-Campbell 1-D	200	3290
WINKLER COUNTY (Emperor)—		
J. M. Weaver, Hoffman & Page, Tobe Morton 4	*	3037
WINKLER COUNTY (Henderson)—		
Atlantic Ref. Co., F. Leck 2-C	3500	3090
Champlin & Bass, Inc., J. W. Hess 5	4000	3075
Cities Service, Daugherty 6-E	5000	3050
R. Olson Oil Co.-Jeffers Oil Co., Hendrick 2	4500	3053
Skelly Oil Co., F. Leck 1-B	7500	3084
WINKLER COUNTY (Kermit)—		
Harry Adams & Hitchcock, Walton 9-A	913	2816
Atlantic Ref. Co.-J. D. Collett, Hendrick 1-K	330	3075
Gulf, Daugherty 53	1160	3163
Daugherty 55	906	3020
Daugherty 56	1070	3020
Humble, E. P. Cowden 2	498	3025
W. A. McCutcheon 3	437	3020
Illinois Oil Co., Abilene Bank-Conoco 12-A	1238	3100
Magnolia, Walton 73	703	3250
Navarro Oil Co., Roy Clapp 1	1475	3050
Sun Oil, Daugherty 6	655	2920
WINKLER COUNTY (Keystone)—		
Richardson Oils, Inc., Walton-Humble 2-B	231	3401

*Failures; †Junked; ¶Million cu. ft. gas.

TEXAS PANHANDLE

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
GRAY COUNTY—		
Cities Service, I. B. Hughey 8-B	685	3295
R. J. Sailor 4	876	3282
F. W. Dye et al, A. Holmes 8	578	3278
Indian Territory I. O. Co., A. Smith 9	846	3270
King Oil Co., Baer 1-C	266	3279
Magnolia, Fee 17, lse. 227	585	2870
Mert Oil Corp., Ayer 2	¶10½	2932
HUTCHINSON COUNTY—		
Continental, E. B. Johnson 4-C	664	3055
Gulf & Panhandle Ref. Co., Dial-Perkins 72	324	3047
Kerlyn Oil Co., W. A. Starnes 1	235	3114
Phillips Pet. Co., Supreme-Staples 1	†	2868
Sinclair Prairie, M. Weatherly 14	131	3095
Walero Oil Corp., W. B. Haile 4	327	3083
MOORE COUNTY—		
Continental, L. B. Armstrong 1	¶53.6	3098
Phillips Pet. Co., Emily Nell-Gulf 1	¶51.4	3641
Stanley Marsh 1	¶56.2	3300

*Failures; †Junked; ¶Million cu. ft. gas.

NORTH TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ARCHER COUNTY—		
Alexson Oil Co., W. H. Taylor 1, sec 1	*	461
L. T. Burns et al, M. A. Collins 3, blk 33	*	1510
W. B. Omohundro et al, J. Penartz 1, sec 19	*	2006
W. R. Stafford et al, E. Hamilton 2, blk 5	*	1162
The Texas Co., F. W. Pollei 6, lot 7		
W. H. Portwood 1-A, sec 1579	*	1468
CLAY COUNTY—		
Foster Minerals Corp., V. H. Yarbrough 1, blk 126	*	3472
W. H. Gant et al, C. M. Worsham 4, sec 38	2500	3932
COOKE COUNTY—		
Bridwell Oil Co., J. R. Parkey 4	*	730
F. W. Merrick, Inc., P. E. Redman 1	*	1654
The Texas Co. et al, J. F. Marshall 1	*	6022
Whitfield-Pearson & Grimes, J. W. Sherrill 1	*	1203
COLLIN COUNTY—		
Foster Jones et al, Shirley 1	*	3003
JACK COUNTY—		
Algord Oil Co., S. M. Jones 2	435	3238
Big Six Oil Co., E. F. Smith 2	543	2947
Burk Roy. Co.-Target Drl. Co., J. M. Box 2	*	3360
Cockburn Oil Co., R. R. Clayton 2	485	3115
Everts Drl. Co., M. Bryson 2	50	3174
D. M. Shown 2, sec 833	*	2134
Bert Fields et al, F. Richards 5, blk 4	4	561
Hammon & Herbert, F. H. Rhodes 7	50	2360
Hanlon & Buchanan, Inc., F. H. Rhodes 1-A	75	2994
A. Z. Kouri et al, J. Smith 1	*	620
Mar-Tex Oil Co., D. C. Clayton 10	133	3033
Mullendore, Berry & Berry, R. R. Clayton 2-B	795	3088
Peery, Woody et al, J. A. Raley 7-B	125	2967
MONTAGUE COUNTY—		
Bridwell Oil Co., L. L. Cunningham-Conoco 1-D	14	1165
Gibson-Jennings, Inc.-Sinclair Prairie, D. T. Holt 18, blk 45	185	1715
WICHITA COUNTY—		
L. T. Burns et al, First Nat'l Bank 14, blk 29	1154	3870
G. W. Cooper et al, Waggoner Est. 26-C	162	1649
Deep Oil Dev. Co., Munger 12-A, blk 30	200	3898
Munger 13-A, blk 25	500	3880
Hawkins et al, Geo. Dobie 3	3	384
W. T. Hoppes et al, Munger 3, blk 30	12	1093
G. A. Hunter et al, Waggoner Bros. 1, sec 8	†	622
Jones & Cowden, Perkins-Cullum 1, blk 21	20	1622
King Oil Co., M. M. Stone 8-A	10	1673
H. G. Mitchell et al, Fassett-Tuttle 2	*	685
Perkins-Cullum Oil Co., T. L. Burnett 3-A, sec 1	20	1531
Peterson & McCarty, E. E. Hardin 39	*	564
E. E. Hardin 40	3	568
Pois & Schulz, Foster-Allen 1-H	*	2102
Geo. Proctor et al, Foster-Allen 14-A, sec 1	1	122
S. H. Walton et al, Gulf Pipe Line Co. 10, sec 23	*	620
WILBARGER COUNTY—		
King Oil Co., Waggoner Est. 8-Q, sec 5	*	1908
YOUNG COUNTY—		
S. S. Alexander et al, W. L. Boyd 1, sec 1455	*	871
Hawkins & Glover, F. M. Rushing 4, sec 212	5	840
T. D. Humphrey et al, J. M. Lewelling-Hawkins 1, sec 605	*	4015
Iron Mountain Oil Co., I. E. McClatchey 1, sec 172	*	1110
Stuckey O&G Co., W. Jones 3	*	550
Underwood Drl. Co., Campbell 27-C, sec 1376	40	898
Campbell 28-C, sec 1375	*	952
Campbell 29-C, sec 3401	*	919
F. V. Hinson 1, sec 1448	*	1448
D. L. Wolfe et al, J. H. Wilson 2, sec 67	*	1106
Worth Oil Co., E. Hall 3	*	742

*Failures; †Junked; ¶Million cu. ft. gas.

High wildcat forecasts extension for Percilla area.

* * *

Trinity is objective of Limestone County wildcat.

Palestine.—High structural position of C. & G. Oil Company et al's F. A. Newsom 1, near south line of Anderson County, forecasts a probable extension for the Percilla area, Houston County, which was proved last May for a large volume of gas and a small amount of high gravity oil from Woodbine topped at 5872 feet. Newsom 1 logged top of Pecan chalk at 4640 feet and first Austin chalk at 5625 feet, with an elevation of 486 feet, and based upon these markers is 90 feet and 75 feet higher, respectively, on structure than Placid Oil Company et al's Elliott 1, first test on the Percilla geophysical prospect. The Anderson County test was coring near the Woodbine level late last week. It is in southeast portion of 30-acre lease and T. C. Lively Survey, about 4¼ miles northwest of Elliott 1. C. & G. Oil Company et al hold lease on 305 acres around the test, but received $12,000 dry hole contributions from maiors. Jas. H. Gardner, Tulsa, et al have lease and royalty protection, and donated acreage towards the drilling of a test.

Opelika Unchanged

Exploratory work on the Opelika structure, Henderson County, remained unchanged the past week, with Tide Water Associated Oil Company et al's McElreath-Suggett 2-C drilling at 8300 feet to try for production in the Travis Peak after encountering head of salt water in lower Glen Rose at 7830 feet.

Drilling is slated to start shortly on Stanolind Oil & Gas Company and Ramsey Petroleum Corporation's Tennie Norris 1, SWc of 40-acre lease, K. Thrasher-H&TC Ry. Survey, Limestone County, with the lower Trinity as its objective. Contrary to earlier reports, it is on the Thornton fault and a separate geological feature from the Kosse freak producing area, according to W. A. Reiter, geologist who shared in the discovery of some of the early oil strikes along the Mexia fault trend. The Thornton fault has been leased almost continually since 1919 when Atlantic Oil Producing Company core-drilled its block before drilling two Woodbine tests, which failed to find sufficient sand to yield commercial production. Humble Oil & Refining Company later invaded the area and drilled a Woodbine failure. Based upon surface and subsurface control, the Thornton fault is accredited with having a greater closure than any of the group embracing the Mexia fault series.

West extension for the Sulphur Bluff field, Hopkins County, became assured when Sun Oil Company's Davis 1, located 786 feet west of The Texas Company's Davis 2, cored oil saturated sand at 4509-17 feet. Top of Paluxy series was logged at 4470 feet, with an elevation of 411 feet. Top of oil pay is about 11 feet lower structurally than the offset due to thick shale section in the upper Paluxy. Seven-inch pipe has been cemented to complete.

Exploration of the lower Trinity horizons at Sulphur Bluff is slated to be undertaken in the near future by Walter L. Goldston and Normandie Oil Corporation, joint owners of the H. J. Smith 450-acre producing lease near the center of the field. This proposed deep test would drill to the lower Glen Rose, or the equivalent of the Rodessa section, and if a normal section prevails would be found near the 6000-foot level.

East Texas bottom-hole pressure drops sharply

Kilgore, Texas.—Sharp recessions of the bottom-hole pressure of the East Texas field, as indicated by monthly surveys conducted by the Railroad Commission's engineering staff, reveals that the flowing energy over a substantial portion of the large oil reservoir is being depleted rapidly.

Bottom-hole pressure survey of 34 key wells completed August 12 recorded a decline of 13.71 pounds during the preceding month to lower the average for the field to 1141.35 pounds. The previous monthly reading that was completed on July 12 accounted for a drop of 8.2 pounds. Pressure has declined 35.12 pounds, varying from 35/100 pounds to 13.71 pounds since the reading on January 12, last date that an increase was reported by the commission.

Rapid gain in water production along the north, west and south flanks of the structure is a contributing factor towards lower reservoir pressure. Estimates on the current withdrawal of water with oil and gas from the Woodbine vary from 75,000 barrels to 100,000 barrels daily. Latest survey conducted by the Commission's field staff does not reveal as great a volume of water, as some property owners purposely avoid the listing of their wells on the water report.

East Texas active rigs drop from 102 to 70

Kilgore, Texas.—Drilling operations in East Texas field are subsiding after advancing to a peak level for the year about mid-July when field reports recorded 102 rigs in service. Expansion of field work began shortly after the posted price was boosted May 22 to $1.35 per barrel. Current report credits the field with 70 active rigs, and 58 completions, including a junked test. During the previous week there were 53 completions.

A sharp decline in completions will take place on the next weekly report due to drilling having declined in volume during the current month.

Some Will Not Pay Out

Borrowed operating capital has played an important part in prolonging the drilling of inside locations, and close spacing of wells. Numerous wells have been drilled on proved locations that will not amortize the cost of completion and operation. Water has reduced a large quota of wells on the west and northwest flanks of the structure to a nonprofitable basis, while depletion of the oil in comparatively thin sand areas along the east edge of the field has brought forth similar results.

Plugging of depleted and non-profitable wells is becoming a routine procedure in the field, although it has not reached important proportions. Combined efforts of federal and state authorities on duty in the field have not broken up the general practice of carrying inactive producers by taking the allowable from more productive wells. Federals do not have jurisdiction on leases that are served by market outlets that engage solely in intrastate shipments.

Granting of permits to drill as exceptions to the Texas Railroad Commission's spacing regulations, regardless of the well density of a lease, has been on an extremely liberal basis for some months. A majority of the large companies are maintaining full time employees to protest such applications, and have succeeded in holding new offsets down to a certain extent.

EAST TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
JOINER AREA—		
Arkansas F. O. Co., J. W. Wheelis 16 (80½-ac)	2500	3689
Atlantic Ref. Co., R. W. Fair 22 (100-ac)	9000	3701
British-American O. P. Co., J. D. Stone 12 (66-ac)	7600	3655
Butler-Calhoun Co. (was Pansy Oil Co.), F. J. Cox 4-B (10-ac)	2400	3642
Chicago Oil Co., J. R. Alford 4-A-a (22½-ac)	2500	3614
G. B. R. Oil Corp., E. S. Thrash 9 (4.92-ac)	3000	3758
Gulf, T. B. Cashen 14 (127.71-ac)	7300	3801
Humble, W. Shaw 11 (76.21-ac)	6500	3713
C. J. Thompson 25 (115-ac)	4200	3680
Hunt Oil Co., R. W. Fair 31-C (211.4-ac)	10,400	3643
C. Young 19 (125.93-ac)	8500	3725
Magnolia, J. R. Wright 41 (78.1-ac)	7800	3648
Manahan Oil Co., W. F. Neal-Shell 14 (109-ac)	5000	3744

East Texas Completions—From Page 67

Company, Well and Location	Init. Prod. Bbls.	Depth
Ohio Oil Co., H. Clay 22 (113.56-ac)	480	3644
Royal Pet. Co., Sol Dennis 1	*	3685
I. W. Wooley 3-B (5-ac)	*	3612
Sun, E. Tucker 2 (7.2-ac)	7500	3664
Texokana Oil Co., S. S. Cook 2-A (3-ac)	7000	3738
J. C. Wynne et al, C. Lee 1 (59/100-ac)	8200	3658
KILGORE AREA—		
Atlantic Ref. Co.-Byrd & Frost, Hughey 16-A-A (105-ac)	8800	3600
Thos. J. Carter et al, Foltz 3 (1.64-ac)	6200	3566
Cities Service, E. L. Walker 17 (152.2-ac)	3600	3627
Gulf, C. E. Christian 36-C (277.85-ac)	5500	3674
S. Hilburn 96 (274.32-ac)	750	3530
Chas. L. McMahon et al, A. Spear-Laird 19 (92¼-ac)	8700	3665
B. F. & Loyce Phillips, A. W. Miller 1 (8-ac)	120	3599
Sells Petroleum, Inc., E. Sibley 6 (24-ac)	6500	3605
V. J. Sladek et al, Ben Geer 1	*	3612
H. R. Smith, Inc., M. B. Hughey 10 (50.6-ac)	8000	3539
Southport Pet. Co., I&GN Ry. 6, Tr. 5 (8.8-ac)	96	3505
Sun, A. G. Morton 28 (336.24-ac)	1500	3479
Tide Water Associated, C. G. Strong 20 (113.1-ac)	6000	3615
LONGVIEW AREA—		
Ed. B. Cox & Jake Hamon, Fee 5-A (54.61ac)	7200	3480
Magnolia, E. H. Brawley 16 (51.56-ac)	8400	3502
F. M. Fonville 7 (50-ac)	10,300	3549
H. Key 14 (89.86-ac)	10,500	3545
O. V. Mullins et al, Johnston 4 (13½-ac)	3500	3670
B. F. Phillips et al, W. Mitchell 1 (48.7-ac)	*	3601
Shell, S. C. Fishburn 17 (100-ac)	9300	3529
Jay Simmons & B. P. Dunlop, Mosley-Rogers 1 (3-ac)	9500	3612
Stanolind, L. C. Ingram 11 (80¾-ac)	10,000	3573
Stanolind-R. C. Love et al, R. Christian 7 (27.48-ac)	8800	3664
Sun-Atlantic, M. Thomas 15 (72.2-ac)	9800	3550
Washington Oil Corp., C. Cobb 1 (1.3-ac)	8500	3618
ANDERSON COUNTY (Cayuga)—		
Tide Water Associated-Seaboard Oil Corp., L. A. Rampy 4 (102.78-ac)	1200	4082
ANDERSON COUNTY (Long Lake)—		
Bayou River Oil Co., Trinity River 2 (30-ac)	¶14	5291
Hunt Oil Co., J. Hunt-R. M. Johnson 1 (111⅓-ac)	¶100	5285
F. D. Poole 1 (24.83-ac)	2000	5373
FRANKLIN COUNTY (Talco)—		
Byrd & Frost, Inc., W. R. Evans-Gulf 2 (315-ac)	360	4270
E. L. Phillips-Gulf 11 (400-ac)	340	4275
Gray & Wolfe, O. E. Bolin 2 (36.95-ac)	275	4330
Humble, L. Wims 2 (172.31-ac)	225	4321
HOPKINS COUNTY (Sulphur Bluff)—		
W. L. Goldston, Tr. et al, H. J. Smith 16 (450-ac)	940	4520
TITUS COUNTY (Talco)—		
Cable Tool Drlg. Co., W. T. Edwards 1 (10-ac)	201	4310
G. M. W. Oil Co., W. T. Edwards 2-A (20-ac)	188	4310
W. B. Hinton et al, L. H. Wilson 12 (119.51-ac)	508	4280
Housh & Thompson, Inc., Moore Grocery 3 (42.94-ac)	502	4300
Humble, A. P. King-Hughes 45 (1053.36-ac)	237	4323
Humble & Adams-Lyles, Milligan 5 (80.81-ac)	97	4296
O'Neal & Rotondi, R. S. Helton 1-B	300	4335
VAN ZANDT COUNTY (Van)—		
Pure Oil Co., D. R. Howell 7 (60-ac)	8000	2955
HILL COUNTY—		
A. N. Mabry et al, Jones 1	*	754
LAMAR COUNTY—		
A. W. Walker, Tr.-R. H. Dearing, Federal Land Bank-R. L. Rose 1	*	2685
CASS COUNTY (Rodessa)—		
R. W. Norton, Davis 4, H. Holbert sur	240	5980
Davis 8, H. Holbert sur	180	6067
United Gas, Viola Bivens 3, Jno. Collum sur	120	6064
R. Bauguss 2, Cass County Sch. sur	432	6012
SHELBY COUNTY—		
Wm. Redditt et al, Pickering Lbr. Co. 1, S. English sur	¶4½	4010

*Failures; †Junked; ¶Million cu. ft. gas.

SOUTH TEXAS

New deep sands found in Refugio and Luby fields.

* * *

Clopton may extend Rio Grande City field 4500 feet.

* * *

Test in North Sweden will be drilled to Cockfield.

Corpus Christi.—Two deep horizons were uncovered in South Texas Gulf Coast fields during the week to turn drilling attention to these lower zones. One was near 7000 feet, while the other was below that level.

Seaboard Oil Corporation of Delaware's Katherine L. Shaffer, east offset to the discovery well of Luby field, Nueces County, was coring ahead below 6950 feet after finding a gas and distillate sand at 6824-54 feet in the Frio. A drill stem test of the full sand section developed 500 pounds pressure in 5 minutes through ⅜ and ¼-inch chokes. A second test with tool at 6847 feet recovered a like amount of gas in the same period, together with 60 feet of distillate cut mud. The bottom hole pressure was 3200 pounds.

The well was coring ahead August 20 at 7015 feet, after a drill stem test of another Frio sand at 7004-15 feet which recovered 1300 feet of fluid, one-half of which was oil and the remainder salt water, in 10 minutes. The test rocked up 25 pounds pressure through ¼- and ⅜-inch chokes.

Plymouth Oil Company's J. F. Odem 1-A, A. Herron Survey, ½ mile east of Sinton in San Patricio County, encountered a sand section which was hard and limey at 5976-86, and on a 15-minute drill stem test with seat at 5975 feet, recovered 100 feet of oily mud, 75 percent of which was oil. It had a good gas blow. The well is being cored ahead.

The above well encountered the regular pay at 5045-67 feet and showed for an oil producer. It likely will plug back and complete at that level.

Over in Refugio County, United Production Corporation's J. J. O'Brien 12, deep test on the east side of the old Refugio field, flowed 131 barrels of 52 gravity oil in 24 hours through ¼-inch choke after casing was perforated at 7103-14 feet. The test showed a gas/oil ratio of 20,000 to 1, and pressures registered 2500 pounds on casing and 2550 pounds on tubing. The well had been drilled to 9225 feet and attempted completion through a series of perforations up the hole to the present level.

National Petroleum Corporation's year-old attempt to control the wild crater on the railroad right-of-way in the Greta field, also Refugio County, proved fruitless, and the relief well has been abandoned. A second, however, is being commenced 10 feet to the southwest. The relief well pumped water and cement into the hole at 2131 feet, but was unsuccessful, deepened to 4415 feet, perforated 4391-98 feet, and pumped water at that level without killing the wild crater 250 feet away.

Magnolia Petroleum Company had better results with its wild well in Jim Wells County. A. A. Seeligson 7, which blew out at 6508 feet and burned for days, was shut in and killed with several thousand sacks of commercial mud. Rig is now being moved in to drill ahead to 9200 feet.

Standard of Texas finds fourth sand for Alta Mesa

Mission. — A fourth oil producing horizon for the Alta Mesa field, Brooks County, was uncovered by the Standard Oil Company of Texas through the completion of Mestina Oil & Gas Company 5, Lease 1, which is flowing after perforating casing at 4513-20 feet. The well, located in Share 5, was drilled to 5055 feet, plugged back and perforated.

The well flowed 280 barrels of 45 gravity pipe line oil, free of water, through ¼- and ⅜-inch chokes under pressures of 500 pounds on tubing and 900 pounds on casing. It opens the first high gravity sand for the field and is 1000 feet deeper than the former deepest level.

The same company was testing Mestina 1, Lease 2, about six miles north of the field. The test, which drilled to 6786 feet plugged back and perforated at 2380-95 feet, where it recovered 2013 feet of sulphur water and a small quantity oil on a 100-minute drill stem test.

The well was reperforated 2383-2400 feet and recovered 1845 feet of sulphur water in 58 minutes. It has been cemented and will perforate at 1910-25 feet, where it will be completed as a gasser to open a new field.

Mestina 8, outpost well, was waiting on cement after setting casing at 2992 feet to test the second sand. It found this horizon at 2993-3003 feet.

Three deep tests started in Willacy County. Magnolia Petroleum Com-

pany's F. Armendias 1 is in Share 4, Carricitos Grant, while Shell Petroleum Corporation's Yturria 2 was drilling ahead after setting 2500 feet of 13¾-inch casing. It is 8200 feet southwest of Yturria 1, a 10,000-foot failure.

Atlantic Refining Company completed its first producer in the Rio Grande Valley, being Nellie Lewis et al 1, in La Blanca field, Hidalgo County. It drilled to 8546 feet, plugged back and perforated at 7882-87 feet with 18 shots, where the test is making a large amount of gas and spraying about five barrels of distillate per hour through ⅛-inch choke under pressures of 2800 pounds on tubing and 2100 pounds on casing.

John H. Clopton was testing D. Tijerina 5, Share 14-C, Porcion 84, which may result in a 4500-foot northwest extension to the Rio Grande City field. The well is in sand at 1388-1400 feet, showing oil. About five miles north of the field, Calderoni-James and Follette's Rodriguez 1, Share 56, Porcion 80, was preparing to run casing after coring oil sand at 1490-96 feet.

K. E. Merren is washing in Starr County Cattle Company 1-A, which is attempting to establish Cockfield production in the Barbacoas field, Starr County. The well originally made a gasser spraying distillate at 5418 feet, but sidetracked and redrilled to 5615 feet, setting 5½-inch casing on bottom. It logged gas sand at 5383-5402 feet and oil sand 5417-27 feet, perforations being made in the lower section. Several thousand feet northeast of the field.

The Texas Company was testing A. V. Guerra 6-A, which is attempting to extend the Mount Selman production in the Roma field, Starr County, 2000 feet east. The test, bottomed at 3653 feet, found hard calcareous sandstone between 3566-3653 feet, and shot it with 300 quarts of nitroglycerine. The test previously had flowed 300,000 cubic feet of gas and sprayed 5 to 10 barrels of oil per day through 3/16-inch choke under pressures of 400 pounds on tubing and 560 pounds on casing.

Wildcat low on Jackson indicates irregularity

San Diego.—Several wildcats in the vicinity of the North Sweden field, Duval County, were holding prime attention in the Mirando district late in the week. One was running extremely low to indicate some sort of irregular condition in the general vicinity, while the other was believed to be logging adequately high to appear to be a certain producer.

Texas Canadian Oil Corporation's Mary J. Luby 1, Section 593, about 3 miles northwest of Benavides, topped the Jackson at 4564 feet and was drilling ahead at 4960 feet, elevation being 464 feet, derrick floor. The top of the formation had been expected at 3700 feet, making the well some 864 feet low. It is being closely watched in hope that it will cut a fault and find lower formations high.

One mile northwest of the North Sweden production, V. L. Blanchard et al's R. V. de Puig 1, Section 8, was drilling below 4185 feet. It is a mile north of the Navarro Oil Company's deep producer in this field and will be carried to the lower sand in the event that the regular 4750 and 4800-foot horizons fail.

Gravis & Doran have commenced a very important test in the main field, being Puig 5, 50 feet east of Puig 4. It will be carried to the Cockfield sand. This is the first well within the central sector of the field to search for lower zones.

Woodley Petroleum Corporation's F. Vaello Puig 1, San Andres Grant, and 1 mile east extension to the field, flowed 96 barrels of fluid, of which 3 percent was salt water and the remainder oil in 24 hours through 15/64-inch choke under pressures of 35 pounds on tubing and 610 pounds on casing. Casing was perforated at 4795-4810 feet after the well had been drilled to 6006 feet.

Would Link Two Fields

Sun Oil Company is attempting to connect the Loma Novia sand production between the Labbe and Seven Sisters field of Duval County. The well, located in Survey 222, cored sand at 2664-68 feet which showed 135 pounds pressure in 25 minutes. Cored ahead to 2677 feet, a drill stem test at 2672-77 feet developed 2100 feet of salt water in 27 minutes. A drill stem test at 2785-94 feet showed 50 pounds working pressure through ⅜-inch choke and 270 pounds shut-in pressure. The well was coring ahead.

Another large production deal became known when Superior Drilling Company of Tulsa took over the operation of C. H. Lewis' A. Lopez lease in the southern portion of the Lopez field, Webb County. The lease, including 280 acres and 12 producing wells in the 2200-foot Mirando sand, is located in Section 110. No consideration was announced, but it is known to have involved several hundred thousand dollars, cash and oil. This is the company's second purchase in the field, the former being 480 acres and 26 producing wells from Mortimer and Springer.

A new oil field for northwestern corner of Duval County appeared possible with G. Stratton and Baltimore Drilling Company testing W. F. Afflerbach 1, which cored oil sand 1095-1102 feet, and is reported to have drilled to 1176 feet. The well is in the center of Section 342.

Amerada fails in attempt to extend Pearsall field

San Antonio.—Efforts to widen Pearsall field, Frio County, failed when the Amerada Petroleum Corporation's D. D. Harrigan 1, 2½ miles southwest of production, swabbed only 11 barrels of oil in five hours after drilling to 6410 feet and plugging back to 5706 feet in Austin chalk. The test had been treated with 5000 gallons of acid without appreciable results.

Halff and Oppenheimer 8, deep test in the field, was still milling out at 10,341 feet.

One of the key wells of the district at this time is Wellington Oil Company's Chittim 1, 2910 feet east of Chittim field, Maverick County. The test is

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being cored solidly, now below 1850 feet.

Mason Altgelt's Schubert 1, Esnaurizer Survey, 5½ miles northwest of Seguin, may be the opener of a new shallow field for Guadalupe County. The well topped Austin chalk at 761 feet, set casing, and made a little oil from this formation. It had been deepened to the Buda near 900 feet and is testing again. It is likely to be acidized before completion.

Hantho-Nelson, Incorporated, is tied up with a completion attempt on Litton 1, 2½ miles east of the town of Cedar Creek. The well, bottomed at 2112 feet, showed considerable oil before the hole bridged. A water well is being drilled, after which the oil test will be completed.

SOUTH TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
LAREDO DISTRICT		
DUVAL COUNTY—		
Argo Oil Co., Juan Carrillo 5, sec 9, Sweden subd (N. Sweden)	240	4776
Bridwell Oil Co., J. G. Anciro 1, blk 19, Santos Flores gr (N. Sweden)	125	4763
Bridwell Oil & Gorman-Yoakam, O. W. Greene 4-A, B. S. & F., easterly sur No. 118 (Hoffman)	110	2708
A. J. Brinkoeter, P. Garcia de Rodriguez 3-B, sur 212 (Seven Sisters)	*	1615
Cox & Hamon, O. W. Greene 18, B. S. and F. sur No. 118 (Hoffman)	100	2760
N. V. Duncan, Worden-Drought 13, sur 151 (Charamousca)	320	1527
Frank J. Gravis, F. Vaello Puig 2-A, San Andres gr (N. Sweden)	230	4813
Humble, Dowdy-Fee 22, B. S. & F. sur No. 272 (Seven Sisters)	415	2554
Standard of Kansas, Mabel Rossi 3, Sweden Farm Lots subd (N. Sweden)	425	4793
Standard of Texas, Gruy est 3, 330 ft nl & 330 ft el of sec 170, Gussett sur, 19 mi w Benavides	*	2852
Wellington Oil Co., J. F. Welder Heirs 4-A, sur 103 (Loma Vista)	*	3100
Woodley Petroleum Co., F. Vaello Puig 1, San Andres gr (N. Sweden)	200	6006
McMULLEN COUNTY—		
Harrison & Danvers, B. C. Claunch 3, Michael Hely sur (S. Calliham)	10	1075
STARR COUNTY—		
Danrey Oil Co., Cayetano Ramos 1, 1408 ft nel, 150 ft nwl, sur 149	*	2505
WEBB COUNTY—		
O. W. Killam, D. G. Garcia 11, (Killam) sur 786	25	2026
ZAPATA COUNTY—		
Allison & Abrams, S. Vela 1, 2640 ft nl, 2640 ft el, sur 259	*	1120
Fansler-Moore-Murray, Gopher Trust Est 1, 150 ft swl, 150 ft sel of 40-ac lse, sur 6, Fullerton subd, J. V. Borrego gr	*	1349
O. W. Killam, A. M. Bruni Est 1, center blk 83, Killam sub. Fl Ranchito Pasture, E. V. Borrego gr	*	4372
James P. Nash, Trustee, Alice D. Haynes 28, blk 7, Comitas & Villa gr (Comitas)	15	1085
B. W. Roscoe, C. Bustamante 19, share 33, Fansler Part, Comitas gr (Escobas)	50	1176
C. Bustamante 33, share 33, Fansler Part; Comitas gr (Escobas)	40	1180
C. Bustamante 34, share 33, Fansler Part, Comitas gr (Escobas)	35	1157
The Texas Co., Whitehead 104, Cerrito Blanco gr (Escobas)	40	1271
SAN ANTONIO DISTRICT		
BEXAR COUNTY—		
Algra Oil Co., Edward G. Peters 1, 1350 ft el, 150 ft wl of 200-ac tr in Miguel Gotari sur or commence w cor of tr, thence n 14 degrees 1085 ft thence 150 ft se at R/A near intersection Garden and New Sulphur Rd., sur 5, sec 4	*	815
CALDWELL COUNTY—		
Fred J. Adams, W. M. Ellison 5-B, R. B. Jarmon sur (Branyon)	200	2136
Baker-Freeman Oil Co., C. B. Corder 3, John A. Neill sur (Branyon)	150	2176
Hantho-Nelson, Inc., F. M. Branyon 3, D. Cooper sur (Branyon)	300	2077
W. S. Clark 2, J. R. Miller sur (Branyon)	800	2180
Union Central Life Ins. Co. 2, John A. Neill sur (Branyon)	220	2158
C. A. Kalb, Tr., M. Bozarth 1, Wm. Spiller sur (Buchanan)	*	2840
McAlester Fuel Co., R. Brown et al 1-B, C. M. Cannon sur (Buchanan)	20	2265
Memphis Nat'l Gas Co., J. M. Young 4, J. R. Miller sur (Branyon)	40	2230
Millican & Norman, Willie Lee Talbert 3, John Henry sur (Luling)	100	2107
H. A. Pagenkopf & L. C. Jamieson, J. M. Hanson Est. 2, James Hinds sur (Salt Flats)	100	2655
Richardson Pet. Co., J. M. Trammell 1, 150 ft nel & sel of 150-ac tr in E. Berry sur	*	2222
Taylor Ref. Co., B. H. Harris 1, H. Cottle sur (Luling)	210	2090
W. L. Lynch 1, W. Spiller sur (Buchanan)	80	2190
J. M. Young (Clark) 1, J. R. Miller sur (Branyon)	200	2180
L. H. Wilson, P. K. Wright 1, 150 ft nl, 1200 ft el 128-ac tr, J. Roberts sur, 2 mi se Lockhart	*	1900
GUADALUPE COUNTY—		
Felmont Oil Corp., Lizzie Schueneman 3, Green DeWitt sur (Zogoroski)	59	2499
Stagel Oil Co., Stagel-Lay 1, Davis and DeWitt sur (S. Darst Creek) owdd	120	2509
CORPUS CHRISTI DISTRICT		
ARANSAS COUNTY—		
Atlantic Ref. Co., McCampbell Ranch 1-D, 40-ac lse, blk 39, McCampbell subd (McCampbell) perf 6538-46 ft	190	7120
Buckingham Oil Co., W. G. McCampbell Ranch 14-A, James Orrick sur (McCampbell)	400	7121
Danrey Oil Co., Hays Estate 1, lot 12, sec 8, McCampbell Ranch subd (McCampbell)	320	7131
BEE COUNTY—		
Salt Dome Oil Co., Tuleta Merchantile Co. 3, sec 10, Jose Maria Uranga Grant (W. Tuleta)	25	3080
BROOKS COUNTY—		
Standard of Texas, Braulia Garcia 3, Tr 3 sh 1-A. W. W. Jones subd, La Mestana y Gonzalena Gr (Alta Mesa)	150	2552
CALHOUN COUNTY—		
Sinclair Prairie Oil Co., W. H. Bennett 1, Agaton Sisneros sur, perf 5467-69 ft (Heyser)	500	5752
HIDALGO COUNTY—		
Atlantic Ref. Co., Nellis Lewis et al 1, blk 214, La Blanca subd (La Blanca)	¶10 & 125	8546
KARNES COUNTY—		
Dirks Brothers, E. Ruhmann 1, 330 ft sl and el of James Johnson sur, A-164, also 330 ft sl & el of 117-ac lse about 1100 nw of Pettus-McKinney producer	950	3624
Magnolia, Guy Porter 17, B. and B. sur No. 23 (N. Pettus)	150	3708
KLEBERG COUNTY—		
Humble, Myrtle P. Hughes 6, K.T. & I. subd, lot 1, blk 39 (Kingsville)	*	4018
LIVE OAK COUNTY—		
W. C. McBride, Inc., A. Sanger 1, 330 ft swl, 2328 ft sel of sec 391, G. C. and S. G. sur	*	4023
NUECES COUNTY—		
Camp Prod. Co., C. Phillip Wardner, Trustee 2, sec 13, Charles E. Stratton subd (Stratton)	160	4725
Fain Gillock et al, Robert Poenisch 2, 638 ft nwl combination lots 7 and 8, blk 32, Flour Bluff & Encinal Garden tracts	*	7010
Houston Oil, T. M. Harrell 6-A, blk 27, Sheppard Farm lots (Saxet) pb/td 4405 ft	295	4526
H. H. Howell et al, Anton Kocurek 3, John Smith sur (Saxet) perf 4124-30 ft	450	4214
Humble, W. R. Swan 1, lot 1, blk 54, (Flour Bluff)	500	6661
L. A. Webb 7, lot 6, blk 47, (Flour Bluff)	550	6670
REFUGIO COUNTY—		
Conroe Drilling Co., F. E. Kloesel 1, center sw¼ ne¼ sec 11, Bonnie View Ranch subd (Bonnie View)	*	4923
National Pet. Corp., St. LB and M RR 1-A, N. S. Crunk sur (Greta)	*	4415
United Prod. Corp., M. F. Lambert 59, blk 47, J. M. Swisher sur No. 7 (Tomoconnor)	965	5915
J. J. O'Brien 12, begin at most s'ly sw/cor of 100-ac tr thence along sl 524 ft thence n'ly at r/a to sl 466 ft. Refugio Town tracts (Refugio) perf 7103-14 ft	¶1 & 350	9225
SAN PATRICIO COUNTY—		
Eleanor Oil Co., J. F. Green Est 1, begin at ne/cor of lse go 4455 ft nw along nl (RR) thence 990 ft s at R/A to lcn 1674-ac lse, T. T. Williamson sur, ab 291	*	7305
VICTORIA COUNTY—		
Barnsdall & American Liberty, Pickering & Roos 21, lot 10, S. A. & M. G. sur No. 8 A 306 (Placedo)	750	4770

*Failures; †Junked; ¶Million cu. ft. gas.

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Pettus sand proving rich in South Burnell field

Beeville. — South Burnell field of Karnes County gives promise of being a rather prolific Pettus sand producing spot with two new completions showing excellent initial flows. Luling Oil & Gas Company's C. W. Boyce, 660-foot southeast offset to the discovery well, flowed 4½ barrels per hour through ⅛-inch choke under pressures of 330 pounds on tubing and 100 pounds on casing after perforating at 3671-73 feet. It previously had drilled to approximately 3900 feet, after topping Pettus sand at 3671 feet and testing a little water with the oil at 3676 feet.

About 1100 feet northwest of the field, Dirks Brothers' Rhumann 2, extension well, gauged 156 barrels in 12 hours through 3/16-inch choke under pressures of 660 pounds on tubing and 1240 pounds on casing. The well logged sand at 3595-3614 feet and is bottomed at 3624 feet.

Goliad Oil Company's Cole 1-A, east offset to the first producer on La Bahia prospect, Goliad County, was waiting on orders at 5687 feet after showing for a wet gasser.

Friendswood extension adds large productive area.

* * *

Texas Company completing deep West Columbia well.

Houston.—Extension of the Friendswood field, Harris County, 1½ miles southeast, by V. H. Borsodi's Taylor 1, was the outstanding development of the week along the Texas Gulf Coast. The well was completed at 6103 feet and flowed at the rate of 28 barrels per hour on a production test. Seven-inch casing was cemented at 6080 feet, and top of the oil sand was encountered at 6081 feet. The well is flowing from a 20-foot section of oil sand that promises to produce pipe line oil. Some wash water was produced with the early flow, but it is believed that the fluid will clean up in a short time.

Information on this test was withheld for some time, pending leasing operations that would have been affected by well reports of any kind. The extension opens a considerable area to development and virtually proves the gap between the discovery well and the latest completion. Leasing activity in all directions from the well continues at a fast pace, although most of the available blocks were tied up more than a week ago.

Palacios Extension

The Palacios field, Matagorda County, was extended more than 4000 feet westward during the week by the completion of Atlantic Refining Company's McCarthy - Palacios State 1, which came in with an initial flow of 240 barrels of clean oil. The well was originally drilled to 7931 feet, but production is coming from perforations between 7862 and 7880 feet.

Sun Oil Company's Bayshore 1, south offset to the discovery well at Palacios, has been drilled to 8749 feet. This flank test will be an important factor in determining the producing limits of the field.

The outcome of a production test in The Texas Company's W. H. Abrams 16, one of two deep wells now being drilled by the company to test lower producing formations at West Columbia, Brazoria County, is being watched closely. The well was drilled to 5604 feet, 7-inch casing cemented at 5490 feet, and screen liner run to test promising formations below the shut-off. Deep production in this field was opened some time ago by the Sterling interests, and it is believed that the West Columbia field ultimately will become an important deep oil reserve. Completion of a good well below 5500 feet probably would result in extensive development of the deep formations.

Abandonment of Salt Dome Oil Company's Lawrence 1, extreme north flank extension test at Cotton Lake, Chambers County, definitely established the producing limits of the field in that direction. The well was drilled to 6515 feet and first flowed some oil with a large amount of salt water. The water cut was so high that abandonment seemed a solution to the problem.

Large Magnet Well

The completion by Humble Oil & Refining Company of Cockburn Fee 1, Magnet area producer, focused attention on this promising Wharton County field. The new well was the second large completion reported, flowing more than 500 barrels during the initial test at 5550 feet.

Ohio Oil Company is making good time in A. Kempner 1, Brazoria County wildcat located in the Chocolate Bayou area, H&TB No. 33 Abstract 251, having passed 7100 feet after making almost 1000 feet of hole during the past week. The company now is feeling for the Frio sand.

West Production Company is drilling below 8000 feet in A. Underwood 1, Harris County wildcat test located 5 miles northwest of LaPorte, with no definite objective in view. The well was presumably ready for abandonment after an unsuccessful test around 6000 feet, but a major company interested in the test apparently wishes to obtain additional geological markers of the district. The present formation is running to shale with streaks of sand

Pure Oil Company continues to have a combination of troubles in Slade 1, wildcat test in the Peach Point area, Brazoria County. The drill stem is being cut and pulled, following formation trouble that stopped progress. This well encountered heaving shale several months ago and drilling has been slow since reaching 7000 feet in April.

Skelly Oil Company spudded during the week in Cobb 1, Van Fleck, Matagorda County, well that is destined to test new levels in the field. Drilling started with the intention of testing formations below 11,000 feet. The 18-inch surface string was cemented at 120 feet and the well is now drilling below 800 feet. Production at Van Fleck is found at several levels between 6000 and 8000 feet.

Maco Stewart has reached a depth of 3000 feet in Maco Stewart 1, wildcat test in the Hitchcock area, Galveston County, and the well is considered an important offset to Shell Petroleum Corporation's recent abandonment, Maco Stewart 1, that encountered some gas.

Harris Test Is Deep

Superior Oil Company's J. A. Butler 1, Harris County wildcat in the Bammel area, is coring below 10,520 feet in shale. This well is the deepest active test along the Texas Gulf Coast. Several slight oil and gas shows were encountered at various levels, but they did not warrant tests. The well has become very important because of its penetration of the deep formations in the district. It is being closely watched from a geological standpoint.

Republic Production Company is attempting to complete Hurd 4, Spurder district, Tyler County, test that is the third to reach the producing zone in this field. The well was drilled to 7640 feet, but mechanical difficulties have prevented a successful completion.

Development in the Hastings field, Brazoria County, was featured by the completion of 5 average producers in the regular producing formation. Stanolind Oil & Gas Company completed Paul 9 as a 557-barrel producer at 6080 feet; Paul 13 as a 500-barrel producer at 6080 feet; L. S. Winston 1 as a 600-barrel producer at 6080 feet; and W. S. Wright 1 as a 550-barrel producer at 6078 feet. Humble Oil & Refining Company completed R. D. Haden 5 as a 600-barrel producer at 6080 feet. The completion depth in this field is the most uniform yet established in any Gulf Coast producing area.

TEXAS GULF COAST Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
AMELIA—		
Humble, T. H. Crook 5	600	6777
J. H. Phelan 7	570	6775
ANAHUAC—		
Gulf, Knowles 8	*	....
Humble, Gripon 13	100	7120
Johnson 11	3	7235
Marshall 6	560	7110
BIG CREEK—		
Bennett Pet. Corp., Davis 2	200	3140
COTTON LAKE—		
Salt Dome Oil Co., Lawrence 1	*	6515
CONROE—		
Humble, Alexander H-2	1115	5098
DICKINSON—		
Bennett and Kenyon, Schroeder 1	675	8095
Diadem Oil Co., Fredericks 1	*	....
FAIRBANKS—		
Amerada and Stanolind, Wright Land Co. 1	300	6834
HASTINGS—		
Humble, R. D. Haden 5	600	6080
Stanolind, Paul 9	557	6080
Paul 13	500	6080
L. S. Winston 1	590	6080
W. S. Wright 1	550	6078
Turner 9	600	6090
LOCHRIDGE—		
Gulf, Baker 2	650	6368
Wilkes and Smith A-5	640	6375
MAGNET—		
Humble, Cockburn Fee 1	500	5550
SOUTH HOUSTON—		
Stanolind, D. D. 7	15	4000
TOMBALL—		
Texas Co., Hillegist 4	432	5626
WITHERS—		
Texas Co., Pierce Estate C-37	*	....
CHAMBERS COUNTY—		
George Anderson et al, Fisher 1, Cedar Bayou	*	6800
WHARTON COUNTY—		
Jack Hutchins, Orsak 1, se of Wharton	*	3080

*Failures; †Junked; ¶Million cu. ft. gas.

SOUTH LOUISIANA

Commercial production establishes Timbalier as field.

* * *

Development on Class A prospects holds interest.

* * *

Continental may establish new depth record.

Lake Charles.—A new oil field apparently has been opened in LaFourche Parish by Gulf Oil Corporation, the company's La. State PP 3, southwest of Marchland prospect in the Timbalier Bay area, Section 36-23s-21e, having produced 32 gravity oil on a drill stem test of sands between 6749 and 6846 feet. On a six-minute test with a quarter inch choke, 1000 feet of oil and 450 feet of oil in the mud was recovered. The pressure was 50 pounds.

Oil sand was cored from 6748 to 6806 feet, and the well gave promise last week of opening a new producing area along the extreme outer coastal strip. A string of casing will be run and the well officially tested.

The location is in Timbalier Bay, between Caillou Island and Bay Marchand, on state swamp land. It is in an inaccessible part of the state. The new field is roughly in line with other producing areas in the district.

Watch Class A Prospects

Developments on the Class A prospects along the Louisiana coast line are being watched closely, and of the three important wildcats nearing critical levels, at least one may result in a new oil field within the next few weeks. The most interesting tests are located in widely separated areas, but in each instance the objective is the deep sands that recently have established new depth marks.

Following the wave of record and near-record discoveries in and near the delta area, operators in these immediate sectors are largely concerned over the probable extent of the new fields. The economic importance of the 10,000 and 11,000-foot production in South Louisiana is far-reaching, and leasing in all parts of the district has been stimulated by the record discoveries. Production below the levels recognized during the original leasing programs has placed an entirely new value on all leases.

May Test Bateman Lake Wildcat

Interest continues in The Texas Company's State Bateman Lake 1, a wildcat test on a promising prospect in St. Mary Parish, Section 21-16s-12e. The well was drilled to 10,541 feet, cleaned out to bottom, and a string of 7⅝-inch casing cemented at 10,515 feet. The casing was supposedly set to protect the hole, but such a long string points to a production test.

Continental Oil Company is drilling below 11,256 feet in J. A. Brookshire 1, an important wildcat test in Vermilion Parish, Section 66-12s-3e, and either a new production depth record or depth record may be established by this well. The formation is running to a favorable shale that stands up well, but a protection string may be run above 12,000 feet. Continental already holds the depth record for the district.

Fishing at North Crowley

Humble Oil & Refining Company has been delayed with a fishing job in Federal Land Bank 1, wildcat test in the North Crowley district, Acadia Parish, after making good progress to 9339 feet. This well encountered top of the Frio at 8611 feet, the deepest level at which this formation has been found in South Louisiana. This is regarded as a Class A prospect.

Humble Oil & Refining Company abandoned two wells in the new Potash field, Plaquemines Parish, both having been dry in the objective formation. Orleans Levee Board 2 was abandoned in gyp at 1280 feet, and Orleans Levee Board 3 was abandoned in the same formation at 1124 feet. This field was recently discovered as a shallow salt dome.

St. Mary Parish Wildcat Quits

The Texas Company abandoned State Mongoulois 3, St. Martin Parish wildcat, at 7851 feet, after a drill stem test of sands between 7826 and 7850 feet showed mud, with no gas or oil. A second drill stem test revealed a slight show of oil along with mud and salt water, but the formations did not warrant further tests. The well is located on Section 14-10s-9e, in Lake Mongoulois, and originally was drilled to 8208, after topping salt at 8175 feet.

Union Sulphur Company has developed oil showings in both of its deep tests in the Big Lake field, Cameron Parish. Only one well has been completed in this field, and both of the active wells are attempting to pick up the producing zone. H. Hebert 1 was drilled to 9103 feet in hard sandy shale. Cores from 9003 to 9043 feet showed shale with an odor of oil, and a slight oil show was developed between 9043 and 9063 feet. P. D. Hebert 1 was drilled to 8439 feet in hard sand and lime. An electrical logging test was made to bottom, and sands at 8382 to 8393 feet looked promising. A string of casing probably will be cemented to test these showings.

Going Deeper

The Texas Company's Horseshoe Bayou 1, St. Mary Parish wildcat completed last week as the second deepest producing well in the world, established a record that has encouraged operators along the "Lafitte sand" belt. The well was completed at 10,873 feet, after plugging back from 12,261 feet. Several companies that two years ago placed a "deadline" of 10,000 feet on drilling operations have decided to increase the objective depth to 12,000 feet. The upper Miocene sands in and near the delta area loom as the backbone of the oil reserve in the district.

The Texas Company completed State Lake Pelto 17, in the Lake Pelto field, with an initial production of 1300 barrels of pipe line oil from 6475 feet. The well was drilled to 6594 feet in water sand, but perforation of the upper strata with 225 holes resulted in an excellent producer. Recent developments in this field have been very promising, and it is believed that the area is a more important oil reserve than originally recognized.

Gulf Refining Company's Haas-Hirsch 1, St. Landry Parish wildcat, Section 12-6s-7e, is temporarily shutdown, awaiting orders, after drilling to 8483 feet in sandy shale. An electrical logging test was made, but the immediate course to be followed has not been announced. Top of the first Marginulina was found at 7286 feet in this well.

SOUTH LOUISIANA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BOSCO—		
Superior, Lacade 1, wo.....	200	8883
CAILLOU ISLAND—		
The Texas Co., State Caillou Island 51	800	3694
CHOCTAW—		
Standard of La., Gay 6, wo.....	120	4205
JENNINGS—		
La. Crusaders, Heywood-Martin-Campbell 1-C	250	3831
LAKE PELTO—		
The Texas Co., State Lake Pelto 11	1300	6594
LITTLE BAYOU (New Iberia)—		
The Texas Co., Hanzen B-3, wo....	770	4775
Hanzen B-6	575	4840
POTASH—		
Humble, Orleans Levee Board 2...	*	1280
Orleans Levee Board 3.....	*	1124
SULPHUR—		
Union Sulphur Co., Fee 806, wo....	¶1	3426
TEPETATE—		
Continental, L. L. Welch A-8.....	180	8306
WEST HACKBERRY—		
W. T. Burton, E. R. Henry 1.....	650	3737
AVOYELLES PARISH—		
Coastal Minerals Dev. Co., Purdy-Hess 1	*	6054
ST. LANDRY PARISH—		
Gulf, Haas-Hirsch 1	*	8483
ST. MARTIN PARISH—		
The Texas Co., State Mongouloi 3	*	6870
ST. MARY PARISH—		
The Texas Co., Horseshoe Bayou 1.	1150	10,929

*Failures; †Junked; ¶Million cu. ft. gas.

NORTH LOUISIANA

Deep Cotton Valley pay extended 1½ miles.

* * *

Test between Lisbon and Sugar Creek flows.

Shreveport.—The Bodcaw lower Marine producing horizon of the Cotton Valley field, Webster Parish, apparently was extended 1½ miles southwest last week by Standard Oil Company of Louisiana and A. G. Oliphant's E. L. Stewart 1, C SE SE 32-21n-10w, which cored 46 feet of saturation and cemented casing at 8681 feet. Total depth is 8700 feet, and elevation is 240 feet. Top of the Bodcaw sand was 8589 feet.

However, the test apparently will make nothing but a regular gas-distillate well, probably as good as any in the field. But it was disappointing in that it is down the southwest flank of the field and had checked 450 feet lower on top of the Travis Peak, which had led to the hope oil would be found. The fact that nothing except the regular gas distillate was found apparently indicates that the Bodcaw horizon carries nothing but gas and distillate at Cotton Valley. While Standard's test in no way condemns further commercial production southwest, it does apparently limit producing territory in that direction, for undoubtedly somewhere not very much farther down dip a water level will be found in the Bodcaw.

Cotton Valley's fifteenth Bodcaw gas-distillate producer was completed last week by Woodley Petroleum Company in Cox A-2, C SW NE 22-21n-10w, completed at total depth of 8285 feet, flowing 539 barrels of distillate in 24 hours with 5,000,000 cubic feet of gas daily; elevation is 202 feet. It is Woodley's second lower Marine producer at Cotton Valley.

With the order of the Louisiana Conservation Commission limiting the space rules at Cotton Valley to one well to 80 acres and the gas allowable with the distillate to 35,000,000 cubic feet daily for the field present gas-distillate production of 2718 barrels divided among 14 wells shows a gas-oil ratio of 12,877 to 1.

Stanolind Oil & Gas Company is negotiating for the purchase of several hundred acres in the Cotton Valley field so far undeveloped, and plans to drill five lower Marine horizon tests if the purchase is made.

Wildcat Produces

Flowing and swabbing oil intermittently after repeated acid treatments, J. R. Bevill and associates' Alex Edmonds 1, NE NE 16-20n-5w, Claiborne Parish, 3 miles from nearest Lisbon production and equidistant from Sugar Creek, last week gave indications of being a commercial oil well but probably of not very large production capacity.

The well was first treated with 1100 gallons of acid, and when opened flowed for 4 hours, then went dead. The following day it was re-acidized with 3500 gallons. When opened it flowed 2 hours into pits, and an hour and a quarter after being turned into tanks, flowing 20 barrels into the tanks before going dead again, flowing through 24/64-inch tubing choke. After another acid treatment it flowed for 6 hours at an estimated rate of 35 barrels hourly and then went "dead." Thursday operators were planning to use 5000 gallons of acid for another test.

The gravity of the oil is 30.8 Baume corrected, with 3.2 percent basic sediment. No salt water has appeared.

T. L. James & Company's Baker 1, 25-21n-5w, ½ mile north of Lisbon production, swabbed and flowed 60 barrels in 24 hours after being acidized last week. It had previously been abandoned as a dry hole when it was 2 miles north of production.

Water in Lincoln Test

Lide & Greer's Causey 1, NW NE NW 32-19n-2w, Lincoln Parish wildcat, last week tested 108 joints of salt water in a 15-minute drill stem test through ¼-inch chokes at top and bottom at 5822 feet in Travis Peak, and after electrical logging device was run, was running casing which will be perforated at 5320-28 feet in basal Glen Rose where the well recently showed for an estimated 50,000,000 feet of distillate-laden gas daily.

Lide & Greer's Davis Lumber Company 2, center west line NE 12-16n-5w, Bienville Parish, was shut down at 7355 feet after testing 99 joints of salt water in 15 minutes from 7267-85 feet in Travis Peak.

Prairie River Syndicate's Hutchinson 1, Section 15-15n-12w, Caddo Parish, was drilling below 8600 feet last week after logging lower Marine at 8380 feet; elevation is 153 feet.

Louisiana side of Rodessa has 35-pound pressure drop

Shreveport.—The weighted average bottom hole pressure on the Louisiana side of Rodessa dropped 35 pounds during the 31 days of July to an average pressure of 1710 pounds, a daily average loss of 1.13 pounds, according to data compiled by engineers of the Rodessa Operators Committee. The numerical average pressure of 74 key wells in the Young horizon was 1496 pounds and in 10 Gloyd horizon wells 2098 pounds. The averages are at 5750 feet, sub-sea.

On the Texas side of Rodessa, data from 50 key wells showed that 34 of these wells showed bottom hole pressure declines for July, and only 16 of them showed gains.

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Three more Rodessa wells for Arkansas

Shreveport.—Three more wells were completed last week in the Miller County, Arkansas, extension of the Rodessa field, to bring the total of producers in that extension to six. Two of the new wells were operations of Freeman W. Burford and the other of Layton Oil Company.

Burford completed J. E. Eason 1, C W½ SW SE 11-20-28, flowing 394 barrels of oil in 24 hours through ¾-inch tubing choke; J. O. Gerrald B-1, NEc 15-20-28, flowing 275 barrels in 24 hours through 44/64-inch choke. Layton Oil Company's E. S. Terry 1, NWc W½ W½ 14-20-28, flowing 295 barrels in 24 hours through 21/64-inch choke. Burford's Eason 2, completed the week before, increased its daily yield from 755 barrels to 1005 barrels, flowing through 1-inch choke.

In the north edge of the Lodi offshoot of Rodessa in Marion County, Texas, Arkansas-Louisiana Gas Company's Fant 1, L. P. Cadenhead Survey, after failing to produce at 6178 feet was cored ahead to 6188 feet and plugged back to 6183 feet where a milling out job resulted. The same company's Emma Ford 1, A. de los Santos Coy Survey, was preparing to set final string of casing after logging top of the Henderson sand at 6034 feet and top of the Gloyd producing horizon at 6053 feet.

R. W. Norton's Payne 1, SE SE 27-23n-16w, deepest test ever drilled in this territory, which went to 11,486 feet, 16 feet into Permian lime and failed to produce in the lower Marine, tested an estimated 10,000,000 cubic feet of gas when plugged back to the Hill gas sand and was shut in.

NORTH LOUISIANA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BOSSIER PARISH (Sligo)—		
Triangle Drlg. Co., Carrie Howell 1, 26-17n-12w	*	5200
CALDWELL PARISH—		
G. W. Zeigen, La. Cent. Lbr. Co. 10, 18-14n-3e	*	1766
CADDO PARISH (Pine Island)—		
La. Oil Producing Co., Muslow B-9, 4-20n-15w	55	1600
Magnolia, S. J. Robertshaw 24, 23-21n-15w	72	1690
Marine Explo. Co., Herold et al 1, 10-21n-16w	*	1032
Surf Oil Co., Hyman Heirs 1, 10-20n-15w	*	2210
MOREHOUSE PARISH (Monroe)—		
United Gas, Crossett Lbr. Co. 52, 15-21n-4e	¶3½	2197
Crossett Lbr. Co. 55, 1-21n-4e	¶1½	2234
OUACHITA PARISH (Monroe)—		
United Gas, D'Arbonne Lbr. Co. A-3, 28-19n-3e	¶1½	2200
UNION PARISH (Monroe)—		
Interstate Nat. Gas Co., Fee 72 6-20n-4e	¶9½	2159
Southern Carbon Co., Grayling 19, 29-21n-4e	¶9	2116
H. L. Woods, Frost Lbr. Co. B-2, 15-21n-3e	¶ ¼	2197
Frost Lbr. Co. B-3, 10-21n-3e	¶1	2203
WEBSTER PARISH—		
(Cotton Valley)—		
Woodley Pet. Co., L. C. Cox A-2, 22-21n-10w	539	8285
CADDO PARISH (Rodessa)—		
Clark Oil Company, Sharpe A-2, 4-23n-16w	95	6055
R. W. Norton, Starcke 13, 17-23n-16w	300	6000
CLAIBORNE PARISH (Lisbon)—		
Atlantic Ref. Co., F. B. King 3, 35-21n-5w	650	5314
Tatum 1, 35-21n-5w	470	5275
Hollyfield & McFarlane, Maggie Patton 3, 31-21n-4w	980	5293
Magnolia, H. E. Patton 3, 36-21n-5w	528	5288
DE SOTO PARISH (Grogan Field)—		
Lyons & Neely, J. P. Brown 1, 36-11n-11w	*	2923
LINCOLN PARISH (Lisbon)—		
W. F. Lacey & F. H. Brown, Laura Caruthers 1, 6-20n-4w	840	5264

*Failures; †Junked; ¶Million cu. ft. gas.

ARKANSAS FIELDS

Schuler field drilling is slacking off

El Dorado, Ark.—Until another producing lense is found in the Schuler field, Union County, Arkansas, which is now producing from five different lenses, little more drilling is expected although this field has to date added 13 oil producers, two of which are off production at present.

Ten wells, not including the thirteenth producer nor the two off production, last week showed a combined daily average production of 6720 barrels and seven of them showed from 2.5 percent basic sediment and water to as high as 75 percent water in one.

The thirteenth producer for the field, added last week was Lion Oil Refining Company's Justiss 1, NE NW NE 19-18-17, in which 7-inch casing was cemented at 6012 feet after it drilled to 6015 feet. Casing was perforated from 5560 to 5578 feet and from 5662 to 5676 feet to take in two producing lenses and the well was completed making an estimated 40 barrels hourly.

Alice Sidney Oil Company's D. S. Morgan 2, Section 18-18-17, perforated from 5768 to 76 feet to test. Edwin M. Jones was drilling ahead after logging nine feet of porous lignitic sand with an oil odor from 6069 to 6080 feet in Marine Oil Company 1, Section 17-18-17. Phillips Petroleum Company's M. Justiss 1, Section 18-18-17, tested salt water after perforating at 5814 to 22 feet. Total depth is 6142 feet. However, when perforated from 5812 to 15 feet the well swabbed 350 barrels of fluid in 12 hours, 75 percent water, through 20/64-inch tubing choke. Phillips also tested salt water at 5812 to 15 feet in Rosen 1, Section 18-18-17, and was plugging back to test again. Total depth is 6089 feet.

Standard of Louisiana McKean 1, Section 8-16-22, Columbia County, Arkansas, tested 1600 feet of mud with no showing of oil or gas from 4441 to 4488 feet.

Four of seven Arkansas permits are for Rodessa

El Dorado, Ark.—Seven drilling permits were authorized last week by the Arkansas Board of Conservation. Four for the Rodessa field extension in Miller County are: Hunt Oil Company, Mabel Ann Wommack 1, 330 north and west SEc SE 10-20-28; F. W. Burford, A. A. Capps B-1, 670 north and 660 west SEc 11-20-28; J. E. Eason 3, 660 south and west NEc SE 11-20-28; East Texas Refining Company, A. A. Capps A-1, 658 north and 668 west SEc 14-20-28. Other permits were: Franklin County—Ozark Natural Gas Company, G. A. Baker 1, 400 west and 660 south NEc SW NW 33-10n-26w, and L. C. Weller 1, 820 north and 416 east SWc NW 18-8n-28w; Pike County—H. T. Beckwith, W. Hendricks 1, 175 south and 200 west NEc NE SW 16-8-25.

ARKANSAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
MILLER COUNTY (Rodessa)—		
F. W. Burford, Eason 1, 11-20-28	394	6060
J. O. Gerrald B-1, 15-20-28	275	6079
Layton Oil Co., Inc., Terry Est. 1, 14-20-28	295	6058
ST. FRANCIS COUNTY—		
Manning & Martin, Inc., Gregg 1, 20-5n-5e	*	3547

*Failures; †Junked; ¶Million cu. ft. gas.

SOUTHEASTERN STATES

Mississippi test logs more asphalt sands

Hattiesburg, Miss.—Additional asphaltic sands have been logged by Sun Oil Company, Wanette Oil Company et al's K. Talley 3, near C NW 33-4n-15w, Scanlan dome area, Lamar County, since encountering salt water when formation tester was used in Tuscaloosa at 5934-59 feet. This wildcat was drilling at 6114 feet, according to late reports. Small amount of semi-fluid asphalt was recovered from almost solid body of asphaltic sand at 5645-5795 feet.

In Madison County, Sun Oil Company and B. B. Jones' W. J. Wilson 1, C SE SE 1-8n-2w, logged top of Selman chalk at 4617 feet, with an elevation of 218 feet, and was drilling in chalk at 4875 feet.

SOUTHEASTERN STATES
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
MISSISSIPPI		
GEORGE COUNTY—		
Cleve Love et al, J. J. Newman Lbr. Co. 1, 9-1s-8w	†	4692
HINDS COUNTY (Jackson)—		
State of Mississippi, Fee 6, 26-6n-1e	*	2524
WILKINSON COUNTY—		
A. B. Taylor et al, Miss-Wis L.&T. Co. 1, 34-4n-1w	*	5559
FLORIDA		
LEVY COUNTY—		
Fla. Oil Discovery Co., Sholtz 1, 9-15s13e	†	510

*Failures; †Junked; ¶Million cu. ft. gas.

Two completions link Eunice and Monument fields.

* * *

Collins discovers shallow pool in Eddy County.

Hobbs, N. M.—Linking of the Eunice and Monument fields has been anticipated for more than a year, but conclusive proof was not established until the past week when two completions wiped out the short interval that has separated the two areas. Closing of the gap has been delayed because of small wells following nitro shots and repeated acid treatments.

The consolidated producing area has a maximum width of about 6 miles, and extends in a north and south direction for 20 miles, with the north end of the Monument sector in line for important extensions. The latter is prorated on a basis of 40-acre units and bottom hole pressure, while production allowable in the Eunice area is on a flat well basis. Since the two areas are linked by small wells no revision is likely to be made in the method of allocating production.

Continental and Texaco Did It

Continental Oil Company's State 1-A-20, NE NE SE 20-20s-37e, south offset to one of the southernmost producers in the Monument area eliminated the gap between the fields. This well flowed 120 barrels of oil in 12 hours through ¾-inch choke after using acid twice in lime at 3840 feet, or 315 feet sub sea. Gas volume was rated at 606,000 feet daily. Formation tester used at 3806-40 feet showed 62,000 feet of gas and no oil, but acid converted the well into an oil producer. The Texas Company's State-Lieu-Lands 12, C SW SW 20-20s-37e, fourth producer on what has been the north fringe of production for the Eunice field, required a nitro shot and acid treatments to develop commercial production from lime at 3750-3858 feet. Bottomed at 330 feet sub sea, it gauged 117 barrels oil, plus 26 percent bs&w, on a 24-hour test through ¾-inch choke. Gas/oil ratio was estimated at 2890 feet per barrel. Casing was gun-perforated with 20 shots at 3660-3727 feet to bolster the gas yield.

Eight Start in Lea County

Lea County was credited with eight new operations, and 11 completions, including two gassers the past week. Locations were distributed among six producing areas. Eunice gained two projects when Stanolind Oil & Gas Company made locations for Gilluly 7-A, C SW SE 24-20s-36e, and Gilluly 8-A, C NW SE 24-20s-36e. The latter is two locations south of nearest production in the Monument area.

Completion of The Texas Company's Saunders 4, C NE SW 18-19s-37e, near north portion of the Monument field, will require a number of progressive offsets. Saturated lime was logged at 3930-4030 feet, with an elevation of 3708 feet, and the well flowed 46 barrels per hour after using 2000 gallons of acid solution. Gas/oil ratio was 785 feet per barrel. Continental Oil Company et al's Sanderson 6-A-11, NE SW SW 11-20s-36e, is a new location for the southwest border of the Monument area.

Continental Oil Company et al's M. B. Stevens 1-A-34, C SW NW 34-23s-36e, listed last week as a failure for the north end of the Cooper lime field, plugged back from 3691 feet and completed as a dry gasser in lime at 3435-3600 feet. Production was estimated at 62,200,000 feet initial via four-inch vent line on seven-inch casing. Closed in rock pressure was 1250 pounds.

Sandy Lime Belt Active

A chain of closely related fields comprising the sandy-lime belt took the lead in new operations. The Penrose area gained two tests when Landreth Oil Corporation made location for Grizzell 4, C SW SW 5-22s-37e, and Gulf Oil Corporation started work on Lee Stebbins 1,

NEW MEXICO Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
EDDY COUNTY—		
Wills et al, State 1, c nw nw 20-20s-30e	132	1477
LEA COUNTY (Eunice)—		
Continental, State 1-A-20, ne ne se 20-20s-37e	500	3840
Stanolind, O. J. Gilluly 5-A, c nw ne 25-20s-36e	1500	3866
The Texas Co., State-Lieu 12, c sw sw 20-20s-37e	250	3858
LEA COUNTY (Cooper)—		
Conoco et al, M. B. Stevens 1-B-34, c sw nw 34-23s-36e	¶62.2	3691
LEA COUNTY (Langlies)—		
Gulf, State-Arnold-Ramsey 1-E, c nw nw 16-25s-37e	¶¼	3512
Jal Nat'l Gas Co., Justis 2, c se ne 20-25s-37e	¶7 & 55	3029
Woodley Pet. Co., Wm. Cook 1, c sw se 28-25s-37e	720	3229
LEA COUNTY (Mattix)—		
Western Gas Co., W. H. Harrison 3, c nw sw 20-24s-37e	288	3694
LEA COUNTY (Monument) —		
The Texas Co., Saunders 4, c ne sw 18-19s-37e	1200	4030
LEA COUNTY (Penrose)—		
Landreth Prod. Corp., Grizzell 3, c nw sw 5-22s-37e	378	3780
Rowan Oil Co.-N. G. Penrose, Ann Walden 1, c nw nw 15-22s-37e	250	3742

*Failures; †Junked; ¶Million cu. ft. gas.

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C SE NW 5-22s-37e. The latter also made location for H. T. Mattern 1-C, C NE SE 18-21s-37e, offsetting a small producer in the Hardy area. Woodley Petroleum Company, Houston, a new entrant, has skidded rig one location east after completing Wm. Cook-Shahan 1, C SW SE 28-25s-37e, Langlie field, flowing 30 barrels per hour average for 48 hours after using acid at 3185-3229 feet. Operations are underway on Humble Oil & Refining Company's Williams 2, C SE NW 34-24s-37e, offsetting production in the south portion of the Mattix field.

Eddy County Wildcat Shows

Discovery of a shallow oil pool in southern Eddy County and southwest of established production materialized through the wildcat efforts of T. B. Collins et al's Weiler 1, C NW NW 13-24s-26e, which is showing for a small pumper. Oil sand was logged at 1958-63 feet, with an elevation of 3245 feet, and water was encountered in deepening to 1970 feet. The hole was plugged back five feet and shot with 40 quarts of nitro at 1943-65 feet. Then it filled 600 feet with fluid. A number of tests drilled several miles east of this wildcat failed to develop attractive production.

A horizontal cut in the proration allowable of all non-marginal wells in Lea County was authorized for the August 16-31 period by the Oil Conservation Commission in order to absorb new completions without boosting the total allowable of the state above 114,000 barrels. Areas prorated on a well basis were cut one barrel, making the current allowable 79 barrels daily. This is the lowest level per well since proration became generally effective.

MOUNTAIN STATES
Completions

MONTANA

Company, Well and Location	Init. Prod. Bbls.	Depth
BIG HORN COUNTY (Hardin Field)—		
Big Horn Oil & Development Co., No. 37, nw ne se 20-1s-33e	¶3	717
C. H. Butler's No. 1, s sw se 18-1s-34e	¶4	721
GLACIER COUNTY (Cut Bank Field)—		
Texas Co., Tweedy 2, cse sw 21-35n-6w	380	2967
Hannah-Porter Co.'s No. 4 Allotted 130, sw se 6-32n-5w	225	2926
Glacier Production Co.'s Moggan Unit 1, ne ne se 33-34n-5e	¶13	2684
TOOLE COUNTY (Kevin-Sunburst Field)—		
The Ilion Oil Producing Co., Haugen 3, ne se 11-35n-3w	75	1533

WYOMING

SUBLETTE COUNTY (Dry Piney Field)—		
Cretaceous Oil Co., Archie 2, s sw 7-28n-113w	*	390
Charles Lackey's Government 3, cse ne 12-28n-114w	*	370
Piney-LaBarge Oil Co.'s Government 1, ne se nw 12-28n-114w	*	2639
SWEETWATER COUNTY (Cherokee Ridge Area)—		
Mountain Fuel Supply Co., Williams 1-A, cne ne 5-12n-95w	¶2	540
UINTA COUNTY (Aspen Field)—		
Pacific Oil Co., Government 1-B, nw nw sw 10-14n-118w	*	1820
WASHAKIE COUNTY (Hidden Dome Field)—		
Nystrom & Smoot's State 6, ne ne 36-48n-91w	55	1641
Wyoming Oil & Refining Co.'s Government 7, sw nw sw 30-48n-90w	*	1880
Christensen & Thorne's Government 4, e sw sw 31-48n-90w	*	1730

*Failures; †Junked; ¶Million cu. ft. gas.

ROCKY MOUNTAIN FIELDS

Three tests start for Salt Creek's new deep sand.

* * *

Lance Creek operators looking for Minnelusa oil.

Casper, Wyo.—A survey of developments in the oil fields of Wyoming showed three new wells getting underway in the old Salt Creek field, Natrona County, where the Stanolind Oil & Gas Company proved the commercial value of the deep Tensleep horizon of the field for the first time last week by getting an 1800 barrel well. The Tensleep sands first indicated commercial possibilities in 1930.

The new starts will enable operators to fix a more definite plan for the future development of the lower horizon. The first of the new wells is Stanolind Oil & Gas Company's Wyoming Oil Company-Tensleep 11, NE SW 35-40n-79w. Locations have been staked for the company's Wyoming Associated Oil Company-Tensleep 11, CNE NW 35-40n-79w and Wyoming Associated Oil Company-Tensleep 29, CSW SW 26-40n-79w. All three will be drilled to the Tensleep.

Stanolind's Tensleep 8, CNW SE 26-40n-79w, which was just completed in the Tensleep sands of the Salt Creek, was again plugged back this week to 4015 feet, where it is testing. It encountered water in the lower sands and plugged back to prevent flooding of the oil producing levels.

Developing Minnelusa

Progress of several deep tests in Lance Creek field, which has also begun an extensive development program for a recently opened new producing horizon, has been fairly rapid. Ohio Oil Company's Taylor 2 OPC-32, NW SW 3-35n-65w, is expected as an early completion. The well is drilling below 5360 feet and is reported in the objective Minnelusa sand. Location of the well on the eastern side of the field is causing considerable interest as it nears the Minnelusa. The company's Leo 1 OPC-7, NWC NW SE 35-36n-65w, is reported drilling at 3880 feet, headed for the Minnelusa sand, and its Lamb 10 Account 2, NE SE 5-35n-65w, on the west side of Lance Creek, is drilling at 4815 feet in red beds topped at 4182 feet.

Bunker Hill Completion Delayed

Completion of Ohio Oil Company's Wyoming Oil & Gas Company 1, CSE SW 29-27n-89w, on the Bunker Hill structure, Carbon County, southern Wyoming, which showed for 3,150,000 cubic feet of gas daily on drill stem test last week, is held up by a repair job on an old P. & R. hole which is located about 100 feet from the new well. The old hole was not properly plugged before abandoning and must be re-plugged before the new well can be completed.

In the Rock River field, Carbon County, the Ohio Oil Company's Dixon 8, NE SE 34-30n-78w, which started as a deep test well of the field, was completed this week as a repressuring well in the Dakota formation at 3140 feet, after plugging back from 5431 feet. Drilling equipment from the Dixon well will be moved to location for the company's Harrison-Cooper 12, SE SW 35-20n-78w, in the same field.

Attempting Elk Basin Extension

On the Carbon County, Montana, side of the Elk Basin field, Henderson Producing Company's Elk 1-H-11, SE SE NW 35-9s-23e, is drilling at 915 feet in a grey shale. Operators are starting 15½-inch hole and will carry the test to below 5000 feet if necessary. The well is a north extension attempt.

The northern outpost well of Powder Wash field, Moffat County, Colorado, Mountain Fuel Supply Company's J. C. Donnell 1, NE SE 21-12n-97w, after several disappointing tests showing water at several levels, was completed this week as a gas well for 4,000,000 cubic feet. The flow was found at 3068 feet by an electrical logging device. The gas flow will be used as drilling fuel in the field.

In the North Baxter Basin field, Sweetwater County, Wyoming, Mountain Fuel Supply Company's Charles Stone, SW SW 18-19n-103w, is drilling at 4233 feet. A drill stem test taken at the base of the Sundance showed hot sulfur water and the well may be abandoned.

Utah Test Running Casing

A new well in Clay Basin field, Daggett County, northeastern Utah, Mountain Fuel Supply Company's Keith Smith 1, SW NE 20-3n-24e, is running surface pipe to 279 feet. The company is starting a new well in the Shell Creek anticline, Moffat County, Colorado, in Section 1-11n-100w.

Drilling equipment has been moved from company's Donnell well in the Powder Wash field to location for the W. L. Williams 1, S NE 5-12n-95w, test of Cherokee Ridge uplift, Sweetwater County, southwestern Wyoming. Gas from the Williams 1-A well, CNE NE 5-12n-95w, completed last week, will be used as fuel.

MICHIGAN FIELDS

Buckeye-Billings structure to be state's "hot spot"

Mount Pleasant, Mich.—An aggressive testing campaign along the Buckeye-Billings structure is getting under way and in all probability will be the "hot" play of Michigan for some months to come. Despite current troubles in moving oil and prospects of the year's flush production breaking the market price, several definite wildcat campaigns are under way and others are being shaped up.

One Plans 20 Tests

Mammoth Producing & Refining Corporation, which has jumped to the front as the top independent producing company in the Buckeye field, announced this week plans for drilling 20 wildcat tests, mostly along the Buckeye trend, within the next six months. This in itself is an ambitious program for any operator where glacial drift multiplies cost. Average wildcat wells on the Buckeye trend will drill to 3500 or 3700 feet at a cost of $15,000 to $20,000 each.

Major companies, virtually excluded from the Buckeye play, with the exception of Sun Oil Company, have been quietly dealing during the past five months and are reported about ready to begin testing of blocks from five to 25 miles from Buckeye pool.

Chalk Up First Failure

One of the first key wildcat tests completed on the Buckeye trend, however, went to failure in the Dundee horizon this week. It was Bell & Marks' Steel 1, Section 22-20n-1e, Clement Township, 9 miles north and 1 mile east of Buckeye production. No shows were logged in the objective formation.

Mammoth Producing & Refining Corporation is toying with a plan to make a Monroe lime test of the Oard 1, Section 25-18n-1w, Buckeye Township, which has been shut down pending decision for several days. The test is on the South Pool flank, and, while showing Dundee oil, is not promising for a commercial producer. So far, the Dundee horizon is the deepest formation tested in the play.

Salem Test Disappoints

First Dundee lime test in the new Salem field play, Allegan County, on the west side of the state, also failed this week. It was drilled to 1950 feet.

As two tests were completed, one productive and the other dry, in the Berea for gas in the Clayton Township (20n-4e), Arenac County unitized reserve building program, an estimated 20,000,000-foot flow of gas was logged in the Berea on Great Western Oil Company's McKay 2, Section 10. The flow cratered the hole and forced temporary removal of rig.

Record Michigan output

Mount Pleasant, Mich.—Michigan produced 1,364,464 barrels of crude oil in July for a record month this year, 94,310 barrels over June, according to the Oil & Gas Association of Michigan.

However, despite the gain in total production, only 3 out of 18 producing areas gained. Buckeye increased from 12,794 to 17,259 barrels per day average; Clayton from 3103 to 3625 barrels, and Sherman from 4263 to 4912 barrels.

Michigan averaged 44,018 barrels per day from 1588 wells in July as against 42,342 barrels per day in June with 1551 wells.

Porter-Yost field in Midland County, largest developed producing area in Michigan, with 430 wells, produced an average of 9214 barrels daily.

MICHIGAN Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ALLEGAN COUNTY—		
Lentz & Miller, Newell 1, ne ne sw 16-4n-13w	*	1627
M. J. Kreiser, Moored 1, sw ne se 16-4n-13w	*	1950
Allegan Crude Oil Co., Holthof 2, nw nw se 17-4n-13w	500	1601
ARENAC COUNTY—		
Fletcher & Leyman, Decker 1, c sw 11-20n-4e	*	1208
Crandell 1, c nw 14-20n-4e	¶4	1240
Great Western Pet., McKay 1, se nw se 10-20n-4e	100	2597
GRATIOT COUNTY—		
Carter Oil Co.'s Hirschman 1, c e½ se ne 13-10n-3w	*	3209
GLADWIN COUNTY—		
A. M. Henry's Lincoln Life 3, se se se 35-18n-1w	200	3596
Wicklund Dev. Co., Campbell A3, ne nw nw 12-18n-1w	200	3645
Bell & Mark, Steel 1, nw nw se 22-20n-1e	*	3591
ISABELLA COUNTY—		
Pure Oil Co., McClintic B3, nw sw sw 33-15n-6w	400	3642
Doyle A1, se ne se 32-15n-6w	183	3645
MIDLAND COUNTY—		
Pure Oil Co., Bond A11, c ne sw 7-13n-1w	60	3432
MONTCALM COUNTY—		
Jeter Dev. Co., Powell 1, nw se ne 34-10n-6w	*	3193
Morris-Warren Oil Co., Fee 1, se se nw 26-11n-5w	360	3255
OGEMAW COUNTY—		
Ross & Bernier, Izworski 4, sw ne ne 23-22n-1e	100	2832
Weber Oil Co., Estey 2, ne nw se 28-22n-2e	40	2700
OCEANA COUNTY—		
E. C. Nelson, William's ne ne ne 8-14n-16w	*	2020

*Failures; †Junked; ¶Million cu. ft. gas.

Bolivar, N. Y.—Sinclair Refining Company reports that producers in the Allegany oil fields during August are running 100 percent the normal amount of crude to Sinclair pipelines stipulated in their purchase agreements. This requirement will be continued from month to month until further notice.

Michigan Third Exposition largest held in state

Mount Pleasant, Mich.—With a total attendance of an estimated 50,000 visitors, a gain over last year of about 10,000, plans were set in motion here this week to reconsider an earlier plan to hold the Oil and Gas Exposition of Michigan bi-annually.

H. B. Lidstone, secretary of the oil show, said that a survey which he conducted among exhibitors this year indicated more than 60 percent favoring an annual show. Final decision probably will not be made for three months.

The third annual exposition, which closed Sunday, August 15, was by far the best received of the three shows presented here to date.

If the exposition is presented again in 1938 or not until 1939, the committee hopes to expand it into an Eastern Oil States show, on the suggestion of several major exhibiting supply companies.

Michigan Oil Exposition Grounds

CALIFORNIA FIELDS

Wilmington extended to Long Beach; 32 rigs active.

* * *

Royalty Service Corporation looking for deep oil.

* * *

Expect 25 drilling tests in Santa Maria Valley soon.

Los Angeles. — Development work now going on in Wilmington field in Los Angeles Basin is setting a new record for the past few years, dating from the big intensive operations at Long Beach, Santa Fe Springs and Huntington Beach. To date, 210 wells have been placed on production. These wells are producing at an average rate of 450 barrels per day per well. It is estimated the field has a daily potential of about 100,000 barrels, although daily production is close to 55,000 barrels, because some of the larger producers have been curtailing. According to scouts, 32 wells are actively drilling. There are 27 rigs up and locations number 40.

Extended to Long Beach

The field has been extended into Long Beach proper, and as the weeks go by, it is expected other locations will be announced in the new area. One authority recently said he felt sure active field operations at Wilmington would continue for at least another six months in drilling to present producing levels and operating companies would be busy all of next year in drilling the present producing zones and that much drilling would be done to lower zones, proved but not developed.

Royalty Service Corporation's Gilmore 842-2, deep test near the corner of E street and Eubank, is being cored ahead at 5235 feet in sand and shale, seeking the deeper Wilmington zone. No oil sand has been found in the deep zone so far, nor have any schist fragments been noted. The late life of this field must be found in the deeper zones. While the upper zones are productive, effort to produce from the lower zones will come later.

Seeking Deep Zone

In the townlot area of Wilmington, Royalty Service Corporation's Gilmore 842-2, is bottomed at 5175 feet, seeking the deep zone found by General Petroleum Corporation in the Terminal area. The hole is being reamed. If it proves production in the deeper zone, it will open up considerable acreage.

General Petroleum is also drilling a deep test on the Ford property, nearly a mile from its first deep test, with bottom at 5100 feet, in sand and shale. The 13⅜-inch casing was cemented at 2588 feet.

Union Pacific Railway Company, which has 34 operations, ranging from locations to drilling wells, is the most active in Wilmington. Six of its wells should be on production within the next 10 days.

Two Drilling at Oxnard

Only two wells are now drilling in the Oxnard area of Ventura County where the lone producer is pumping 25 barrels from 3024 feet. Most of the attention is being centered on Oxnard Oil Company's Vannoi 1, Section 10-1-22, which is drilling at 3900 feet in shale and has rather good looking shows on the ditch. Operators have great hopes of picking up an oil sand between the present depth and 4000 feet.

Late last week, Walter G. Rowe let contract for a well to be drilled on the Lawrence Johnson property, two miles southeast of the Oxnard well. Rowe leased 500 acres in this area recently and has assigned 290 acres to the Standard Oil Company. Should another producer be completed, probably a dozen locations would be announced immediately.

Considerable of the land under lease lies inside of the city limits of Oxnard, and city officials have devised some heavy burdens on the operators. A flat charge of $500 is being charged for a drilling permit, each drilling well must pay $200, and the city demands 1½ barrels of oil per day, after being placed on production.

CALIFORNIA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
MOUNTAIN VIEW—		
American Explor. Co., Clemmens 1	330	4750
MOUNT POSO—		
Ring Oil Co., Rodger-Jones 1	375	1725
ROUND MOUNTAIN—		
Honolulu Oil Corp., No. 18-A	175	1795
Shell Oil Co., Olcese 2	150	2906
SHIELLS CANYON—		
Petroleum Sec. Co., Calumet 1	135	4763
KERN COUNTY—		
Ray Luse, McNeil 1	*	3020
Wilshire Oil Co., Tejon 1	*	5405
RICHFIELD—		
Union Oil Co., Stern 14	100	3372
TORRANCE—		
Signal Pet. Corp., No. 1	100	4466
WILMINGTON—		
Bankline Oil Co., Pacific Term 9	250	3396
Burnoil Pet. Co., No. 5 96-A-1	220	3520
Caminol Co., No. W-1	650	3630
Eitra Oil Co., No. 10	300	3555
General Pet. Corp., Ford 15	200	3078
Ford 19	1100	3030
Ford 21	220	3100
Terminal 6	430	3615
Terminal 8	1515	3460
F. C. Hall, Lakme 1	430	3626
A. T. Jergins Trust, Anaheim 1	170	3460
Royalty Service Corp., Price 1	710	3630
Oceanic Oil Co., No. 1	150	3530

*Failures; †Junked; ¶Million cu. ft. gas.

To Abandon Cantua Creek Test

In the Cantua Creek area in Fresno County, Western Gulf Oil Company has decided to quit Skelley Estate 1, Section 32-16-15, with bottom at 6528 feet. Three feet of oil sand was cored from 6442 to 6445 feet, and from that point to bottom gray sand spotted with oil was cored. Two formation tests were run, but were not conclusive, due to caving shoulders. This is the fourth test drilled in this area by Western Gulf, all being abandoned. The company holdings in Cantua Creek are rather large.

Kettleman North Dome Association's No. 4-18J, Section 18-21-17, outpost test which produced at the rate of 1200 barrels a day from below 10,000 feet, is now drilling at 10,840 feet, with the last five feet showing hard silty shale. Previously, the formation had been mostly oil sand. It is doubted if the hole will be drilled much deeper before another production test will be made.

Santa Maria Valley Busy

Santa Maria Valley field in Santa Barbara County has 10 drilling wells with five rigs and locations. The new field apparently will cover rather a wide area, and it is likely that within another 60 days 25 wells will be drilling. Southern California Drilling Company's Houk 1, Section 9-9-33, bottomed at 5003 feet, recently pumped at an 80 barrel a day rate, but pumped off in three hours. Tubing was lowered and it is now pumping five barrels an hour, heavy oil. This hole was drilled by W. D. Shaffer of the Shaffer Tools Works and then shut down. Shaffer then made a deal with the drilling company to redrill the hole and try to make a producer out of it. The Shaffer lease is completely surrounded by other leases and it is expected it will bring about additional drilling. This new area was proved by Union Oil Company, prominent operator in the old Santa Maria field.

The old Ventura Avenue field in Ventura Avenue field has not been receiving very much attention recently, but 12 strings of tools are busy. Nine of these operations are credited to Tide Water Associated Oil Company, and this company is preparing to start two more. Shell Oil Company is drilling two holes and General Petroleum Corporation is drilling two.

West American Oil Company's Irvine Ranch 1, Section 14-5-9, in Orange County is bottomed at 6070 feet. It has run 4¾-inch liner, including 500 feet of perforated, and swabbed muddy water, no gas or oil. It is planned to plug off bottom and gun perforate to test showings higher up in the hole. Scouts refused any information at the test, but operators seem to feel they have something, since they erected flow tanks, etc., before starting the production tests.

IMPORTANT WILDCAT TESTS

ALABAMA

CHOCTAW COUNTY—Joe Modisett et al's McCorvey 1, se sw sw 20-9n-2w, elev 120 ft, top Selma chalk 1865 ft, dr 2350 ft chalk.

GREENE COUNTY—Greene County Dev. Co.'s R. C. Lett 2, se nw 5-21n-2e, sd 115 ft.

HOUSTON COUNTY — Rice O&G Co.'s Oakley Est. 2, nw sw 9-3n-29e, sd 4975 ft.

ARKANSAS

ASHLEY COUNTY — Phillips Pet. Co.'s Stillions Lbr. Co. 1, s½ sw nw 18-17-9, dr 4950 ft.

CROSS COUNTY — Manning & Martin's Park-Gieseck 1, nwc ne ne 4-6n-5e, mim.

CLEVELAND COUNTY—J. R. Lockhart's Hernsberger 1, se ne 16-11-13, dk.

COLUMBIA COUNTY—Robt. Keen's Runyon 1, se ne 1-16-21, sd 700 ft. Standard of La.'s McKean 1, c sw sw 8-16-22, elev 257 ft, chalk 1883-2163 ft, top Tokio 2763 ft, dr 4479 ft.

CRITTENDEN COUNTY — Stanley Oil Corp.'s D'Anna 1, 18-8-9, claim so 1366-87 ft, arr drill stem test 1387 ft.

HEMPSTEAD COUNTY—Easton, May & Murdock's LaGrone 1, ne ne 5-12-16, top anhydrite 1534 ft, dr 2300 ft. Davidson & Todd's Smith 1, sw se 1-11-25, sd 2005 ft. J. P. Birdwell et al's Duckett 1, nw sw 24-13-14, dr 1626 ft shale.

LONOKE COUNTY—Frank Silver's Chambers Est. 2, ne nw 17-2-7, 7-in csg 1489 ft, arr dr plug and test, td 1500 ft. Al Demurs' High 1, ne sw 25-1n-9w, sd 512 ft, Jas. E. Russell's Gunter 1, 17-5-10, dk.

MADISON COUNTY—J. E. and Jno. Hardy's Hamlin 1, sw nw se 8-16n-26w, mim.

MILLER COUNTY—F. W. Burford's B. H. Means 1, sw nw 11-20-27, lcn.

NEVADA COUNTY—W. E. Lokey, Tr.'s Purifoy 1, ne ne 17-11-20, chalk 765-920 ft, dr 1400 ft shale.

OUACHITA COUNTY — Copenhaver Oil Corp.'s J. E. Evans 1, 20-11-19, co, td 1730 ft. Tidewater Associated & Seaboard's S. A. Graves 1, ne se nw 33-13-18, top anhydrite 3855 ft, dr 3875 ft.

PIKE COUNTY—Beckwith et al's Hendricks 1, c nw sw 16-8s-25w, sd 312 ft sandstone. Wallace & Neill's Tilyou 1, se se 26-8s-24w, rur.

SALINE COUNTY—Duncan & Bibens' Williams 1, nw ne 18-3-15, sd 104 ft.

ST. FRANCIS COUNTY—Manning & Martin's Gregg 1, ne sw nw 20-5n-5e, dry abnd 3547 ft sandy shale.

UNION COUNTY — W. D. Wingfield's Southern Kraft 1, sw ne 18-16-14, elev 124 ft, dr 3690 ft. I. J. Langley's K. K. Langley 1, nw se ne 1-19-18, mim.

CALIFORNIA

FRESNO COUNTY

CANTUA—Western Gulf Oil Co.'s Skelley 1, 32-16-15, td 6528 ft, ran formation tester, hole caved, three feet of oil sand 6442 to 6445 ft, then into gray water sand, suspended.

KERN COUNTY—

DEVIL'S DEN—Amerada Pet. Corp.'s Beer 4, 17-26-19, td 2670 ft, pumping 10 bbls 25 gravity oil. Den Pet. Co.'s Bates 1, 20-25-19, td 4318 ft, plug 4130 ft, redr at 4312 ft. Geo. Goodrum's Baron 1, 24-25-18, sd 320 ft. Lube Oil Co.'s Gordon 1, 2-25-18, sd 4280 ft.

LERDO—Arkelo Pet. Co.'s No. 41, 23-28-26, td 10,056 ft, redr to 7613 ft, set whipstock at 7525 ft.

BENA—Bacal Oil Corp.'s No. 1, 5-30-30, sd 1790 ft. Cajalco Pet. Co.'s Brown-Pallette 1, 9-30-30, sd 3570 ft.

McKITTRICK—Birch Ranch Oil Co.'s Lovitt 1, 10-30-21, spd 8/8, dr.

WASCO—Continental Oil Co.'s K.C.L. A-2, 8-27-24, dr brown shale 9625 ft, oil showing in shale fractures at 9554 ft. Seaboard Oil-Tide Water Associated's K.C.L. C-1, 26-27-24, sd 10,213 ft.

ROSEDALE—Continental Oil Co.'s K.C.L. B-1, 12-29-26, td 10,205 ft, fsh dr pipe.

JASMINE—Doyle Pet. Corp.'s Quinn 1, 15-25-27, sd 2956 ft.

ROUND MOUNTAIN—Freemont Oil Co.'s Olcese 1, 26-28-29, sd 2820 ft, top Walker 2800 ft, Vedder zone absent. Rudolph Pageman's No. 1, 10-28-29, rig. Pebble Beach Oil Co.'s Olcese 1, 16-28-29, td 1706 ft, plug 415 ft, cemented 8⅝ in at 395 ft. T. J. Tavis' Olcese-Tavis 1, 4-29-29, dr shale 2610 ft.

ARVIN—General Pet. Corp.'s Houchin 1, 27-31-29, td 1181 ft, wocs 13⅜ in at 1002 ft.

PREMIER—General Pet. Corp.'s Umbsen 1, 36-27-26, dr shale 5876 ft.

NO. KERN RIVER—Hub Oil Co.'s No. 1, 8-28-28, sd 3320 ft.

SAN EMIDIO—Kern Leasing Co.'s No. 2, 14-10-23, sd 310 ft. Union Oil Co.'s Morrison 1, 31-11-22, td 2075 ft, plug 765 ft, wocs 8¼ in at 410 ft.

KERN RIVER—Ray Luse's McNeill 1, 10-28-28, td 3020 ft, abn. Well Developers' No. 1, 16-28-28, rig.

GRAPEVINE—Oil Oil Co.'s TI&T D-1, 21-11-19, td 9625 ft, bridged at 5972 ft, ran formation tester, no oil or gas, will test by stages upper zones. Reserve Oil & Gas Co.'s No. 33-4, 33-11-19, td 5444 ft, tested wet, recemented 8⅝ in at 4540 ft. Wilshire Oil Co.'s Tejon 1, 5-10-19, td 5406 ft, was running on structure, abn.

ELK HILLS—Richfield Oil Corp.'s Buena Vista A-1, 7-31-25, rur.

MOUNTAIN VIEW—Section Six Oil Co.'s Johnston 1, 6-31-29, rur. Union Oil Co.'s Standard Oils' Barnbeltz 1, 1-30-28, lcn.

TEN SECTION—Shell Oil Co.'s Canal 21-14, 14-30-25, td 8613 ft, plug 8232 ft, sd.

FRUITVALE—Shell Oil Co.'s Bellevue A-36-31, 31-29-27, dr shale 8310 ft. South Western Dev. Co.'s K.C.L. 1, 15-29-27, dr 3175 ft, top oil sand 3155 ft.

McGUNDEN—Standard's Routzong 1, 2-30-28, lcn.

GREELEY—Superior Oil Co.'s K.C.L. 9, 3-30-26, foundation.

SO. MARICOPA—Texas Co.'s Pioneer-Unit 1, 33-11-23, grading.

RIO BRAVO—Union Oil Co.'s Kernco 1-34, 34-28-25, td 10,310 ft, dr out to 10,254 ft, ran formation tester, recovered muddy salt water, co.

MISCELLANEOUS

HUMBOLDT COUNTY—Texas Co.'s Eureka 2, 22-3-1, td 7708 ft, plug 6473 ft, perforated 4000 to 4220 ft, washing perforations.

KINGS COUNTY—Ray Bisconer's No. 2, 11-24-20, dr blue shale 1650 ft. Central Calif. Utilities' Kettleman-Lakeview 3, 11-23-19, sd 1202 ft, plug 1190 ft, sd. Dudley Ridge Dev. Co.'s No. 2, 24-23-20, dr shale 3275 ft. Kettleman View Oil & Gas Co.'s No. 1, sd 4787 ft. Glen C. Stone's Teeter 1, 25-20-20, sd 1315 ft. Tri-Counties Oil Co.'s Olson 1, 10-23-22, dr shale 6007 ft. Carl W. Weller's Del Sable 1, 11-23-16, lcn.

MADERA COUNTY — Seaboard Oil Co.'s Associated-General Pet-Gill 1, 27-12-15, dr shale 1010 ft.

SOLANO COUNTY—Amerada Pet. Co.'s J. C. Hamilton 1, 24-4-2, td 4429 ft, shut in; Neil Hamilton 1, 36-4-2, dr shale 4430 ft.

SUTTER COUNTY—Buttes Oilfields' Marysville Buttes 4, 2-15-1, td 5850 ft, ran formation tester, good for 21,000,000 cu ft gas, shut-in, tubing pressure 2700 pounds, casing pressure 1400 lbs.

TULARE COUNTY — Amalgamated Oil & Gas Corp.'s A. O. G. 3, 29-24-24, rur. E. P. Jennings' No. 2, 33-23-23, dr shale 2030 ft. Standard's Morris 1, 36-24-23, dr shale 6250 ft. Tulare Dome Oil Co.'s Tulare Dome 1, 17-21-23, dr shale 2120 ft. L. E. Turner's Glaze 1, 15-22-26, td 3282 ft, ran formation tester, trace oil, to set casing.

YOLE COUNTY—Empire Oil & Gas Co.'s No. 1, 8-9-3, lcn. Standard's Peter Cook 1, 32-12-1, lcn; Hooper 1, 32-9-1, td 3492 ft, plug 2300 ft, redr to straighten hole.

MONTEREY COUNTY—Amil A. Anderson's Hillman 1, 15-24-14, dr shale 1600 ft. California Oils' No. 2, 33-23-15, lcn.

SAN LUIS OBISPO COUNTY—Burkholder Oil Corp.'s Clay 1, 14-10-26, dr shale 3960 ft. Hancock Oil Co.'s Dicks 1, 30-12-33, dr shale 387 ft, lost circulation. Dorothy Leingang's Leinganz 1, 32-10-25, dr shale 375 ft. A. O. Lewis' Pecho 1, 34-30-10, td 2750 ft, ran 6⅝ in to 2744 ft including 425 ft perforated, standing. J. D. Martin's Pricco A-4, dr shale and sand 3450 ft. Temblor Oil Co.'s No. 1, 22-31-21, dr gray shale 3050 ft. Vanguard Oil Co.'s Clark 1, 26-27-14, rur.

SANTA BARBARA COUNTY—E. C. Arnold's Apache 2, 8-8-33, dr shale 5620 ft. Crude Oil Dr. Co.'s Crude 1, 19-9-34, td 300 ft, r. Hancock Oil Co.'s Los Alamos 2, 6-7-32, dr shale 5098 ft, 70 degree dips. Leora Oil Co.'s Fithian 1, 8-4-25, sd 1025 ft. Midwestern Oil Co.'s No. L-1, 28-4-27, sd 2054 ft. Nine Springs Oil Co.'s Brinkinhoff 1, 9-7-30, sd 3300 ft. 101 Oil Co.'s Hollister 1, 35-5-33, dr brown shale 2360 ft. Tide Water Associated's Leonis 1, 3-6-33, dr brown shale 2361 ft. United Western Oil Co.'s No. 1, 16-7-30, rur. Valley Oil Co.'s Chief 1, 20-9-34, td 2315 ft, locating water. Vista Del Mar Oil Co.'s Williams 1, 16-4-26, td 3329 ft, in red shale, fsh dr pipe.

SANTA CRUZ COUNTY—Elba Oil Co.'s Elba 1, 6-12-1, dr shale 3630 ft.

VENTURA COUNTY—El Rio Oils-Canada's El Rio 1, 6-1-21, td 3024 ft, pumping 25 bbls 25 gravity oil. Oxnard Oil Co.'s Vannoi 1, 10-1-22, dr 3582 ft, shale, fair cuts 3560 to 3582 ft. Richfield Oil Corp.'s McFarland 1, 13-2-21, dr shale 1451 ft. Vaca Oil Explor. Co.'s Livingston 1, 6-1-21, dr shale 2378 ft.

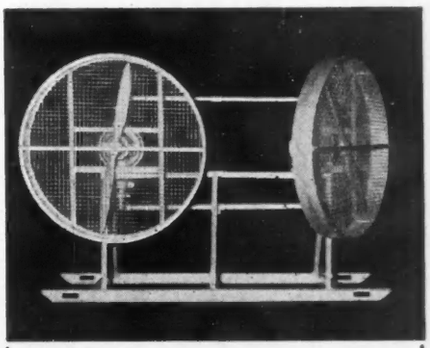
SOUTHERN CALIFORNIA

NEWHALL—Barnsdall Oil Co.'s Rancho S.F. 2, dr shale streaks sand 4630 ft. Holbrook

ABBREVIATIONS

The following abbreviations, signs, etc., are used in completions and wildcat reports in THE OIL WEEKLY.

*—*dry hole abandoned well.*
‡—*salt water (completions).*
†—*junked and abandoned.*
¶—*million feet of gas.*
abd—*abandoned.*
bbls—*barrels.*
br—*building rig.*
b.s.—*basic sediment.*
csg—*casing.*
co—*cleaning out.*
dd—*drilling deeper.*
dk—*derrick.*
dr—*drilling.*
fsg—*fishing.*
ft—*feet.*
hfw—*hole full of water.*
in—*inches.*
lcn—*location.*
m—*milling.*
mim—*moving in materials.*
mit—*moving in tools.*
mot—*milling on tools.*
n, s, e, w—*north, south, east, west.*
oih—*oil in hole.*
owdd—*old well drilling deeper*
owpb—*old well plugging back.*
pb—*plugged back or plugging back.*
r—*reaming.*
rog—*rig on the ground.*
rur—*rigging up rotary tools.*
rust—*rigging up standard tools.*
sd—*shut down.*
sdtr—*sidetracking.*
sg—*show gas.*
si—*shut in.*
so—*show oil.*
so&g—*show oil and gas.*
spd—*spudding.*
sr—*straight reaming.*
sw—*salt water.*
td—*total depth.*
ur—*underreaming.*
wih—*water in the hole.*
wo—*workover.*
wocs—*waiting on cement to set.*
wosr—*waiting on standard rig.*



Adjustable . . .
TWIN BUG BLOWER
Sold Thru Supply Stores

The 8 ft. Adjustable Twin Bug Blower has the more efficient two blade 40-inch Airplane type propeller of cast aluminum alloy which is not affected by the weather. Being adjustable this blower will affect more derrick floor area than other types.

GARROTT BRASS & MACHINE CO.
1713 ENNIS ST. HOUSTON, TEXAS

Pet. Co.'s Newhall Land 1, 28-4-16, dr shale coarse sand 5890 ft.

PICO CANYON—A. G. Burt's No. 1, 36-4-17, dr hard sand 2034 ft.

LYNWOOD—Calizoo Oil Co.'s Saulque 1, 9-3-13, td 7520 ft, placed plug, to run formation tester.

NO. LONG BEACH—Geo. L. Clayton's No. 1, 32-3-12, td 5055 ft, co.

FOX HILLS—Country Club Oil Co.'s No. 1, 19-2-14, sd 4986 ft.

PALMSDALE—Wm. S. Diller's Lindsey 1, 1-5-12, td 1135 ft, showing oil, to recement 8⅝ in at 530 ft.

SUNSET BEACH—A. S. Johnston Dr. Co.'s No. 30, 20-5-11, dr sand and shale 3180 ft.

WALNUT—Julian & Criswell's Langstaff 1, 5-2-9, dr shale streaks of hard sand 2294 ft.

PALOS VERDES—McClaren Bros.' No. 1, 27-4-14, td 3970 ft, to test on pump.

PLAYA DEL REY—Metropolitan Oil Co.'s No. 1, 34-2-15, td 6500 ft, to deepen.

DEL REY-VENICE—Sharby Oil Co.'s Santa Monica Dairy 2, 22-2-15, dr hard brown shale 5890 ft.

MONTEREY PARK—Wales Pet. Co.'s Haig 1, 26-1-12, sd 3460 ft, equip removed.

ORANGE COUNTY—Wm. Alexander's No. 1, 22-3-9, foundation. Amalgamated Oil & Gas Co.'s Parr Com. 1, 22-3-9, lcn. F. E. Fairchild's No. 1, 22-3-9, lcn. A. W. and Mohr B. Hjorth's Behrees 1, 22-3-9, rig. Shell Oil Co.'s Harbeson 1, 9-4-10, dr sand and shale 2620 ft. Signet Oil Co.'s Signet 1, 21-3-9, td 1947 ft, to test on pump. West American Oil Co.'s Irvine 1, 14-5-9, td 6070 ft, ran liner, swabbed muddy water, to perforate higher.

SAN BERNARDINO COUNTY—Quartermaster Oil Prod. Co.'s No. 1 (Victor Valley) 21-5-6, lcn.

FLORIDA

LAKE COUNTY—Oil Dev. Co. of Fla.'s Gulf Expl. Co. 2, se se 17-24s-25e, elev 120 ft, arr acidize and retest at 2600 ft, old td 6126 ft.

LEVY COUNTY—Fla. Oil Disvovery Co.'s Sholtz 1, sw ne 9-15s-13w, elev 25 ft, junked abn at 510 ft. Sholtz 2, (10 ft from No. 1), spd.

NASSAU COUNTY—St. Mary's River Oil Corp.'s Hilliard Turpentine Co. 1, nw nw se 19-4n-24e, elev 110 ft, dr 2805 ft sandy lime.

POLK COUNTY — Edw. A. Hill's Polk County Lbr. Co. 1, nw ne 32-25s-25e, dk.

SUWANEE COUNTY—Wm. G. Blanchard's Lucy Cotton 1, se ne 35-3s-11e, rur.

KANSAS

BARBER COUNTY—Olson & Skelly, Elsea 1, sw se nw 27-32-14w, setting surface pipe. Helemrich & Payne et al's Blunk Estate 1, c se 18-34-13w, mim. W. I. Southern, Inc.'s Davis 3, se ne 24-34-15w, dr plugs.

BARTON COUNTY—Republic Natural Gas Bloomer 1, ne nw nw 14-17-11w, run 7 in 3326 ft. Sam Murphy's Beck 1, ne cor 17-17-12w, 3355-68 ft, run 5 inch. Armes & Vernon O&G, Parsons 1, sw se 7-17-13w, spd and sd. Vickers Pet., Lucas 1, nw nw ne 16-17-14w, dr 2345 ft. C. L. Price's Hammeke 1, ne sw 12-18-12w, td 3427 ft, 1900 ft oih and 5 bbls water in 1½ days. Helmerich & Payne et al's Sessler 1, sw se 29-20-11w, sd 3423 ft td, pb 3416 ft. J. B. Hanna's Luce 1, swc 21-20-13w, 400 ft oih through 2400 ft wih, cem 5 in 3414 ft, td 3420 ft.

CHASE COUNTY—California Illinois Kansas Oil, Hughes 1, sw nw se 13-22-9e, dr 2575 ft.

BURTON COUNTY — Phillips Petroleum, McClanahan 1, ne se 7-16-13w, cem 7-in 3363 ft, rust. Ralph Wixson et al's Buhrle 1, se ne 14-16-13w, dr 265 ft. Stanolind et al's National Bank 1, se sw 36-16-13w, cored 3390-2400 ft.

BUTLER COUNTY—Rex & Morris et al's Stephens 1, sw se 35-23-3e, ru mach.

CHAUTAUQUA COUNTY—C. L. Brosius et al's Garrett 1, nw sw nw 26-32-11e, run 6 in 1940 ft. Craft's Lagree 1, se nw ne 8-32-12e, pb 700 ft, sand 665-67 ft, est 4 bopd. S. H. Vineard, Hughs 1, ne se 13-32s-12e, sd 400 ft. Robinson et al's Foster 1, swc 6-33-12e, pumped 120 bbls oil and 10 bbls wtr in 20 days, td 1986 ft. F. S. Craver's Floyd 1, nw sw se 26-33-12e, D&A 2012 ft. Harrison Brown 1, ne se ne 19-34-10e, dr 190 ft. Miller et al's Wininger 1, ne cor 2-35-9e, td 1935 ft, est ½ million ft gas, completed.

COWLEY COUNTY—E. B. Shawver, Fee 1, nw ne se 3-30-4e, dr 2160 ft. Rex & Morris et al's Lanier 1, ne nw 10-30-5e, dr 2395 ft. National Refg. Co.'s Schwantes 1, nw sw ne 16-32-3e, dr 2200 ft. Lewis Production, Feaster 1, se nw sw 36-32-5e, dr 3221 ft. Pryor & Lockhart, Brown 1, ne se se 34-33-3e, lcn. Trees Oil Co.'s Hornbeck 1, nwc 5-33-4e, D&A.

EDWARDS COUNTY—Douglas & Gear's et al's Meade 1, se nw 33-25-16w, dr 1035 ft.

ELLIS COUNTY—Vickers et al's Parker 1, c nl ne nw 35-11-16w, D&A 3395 ft. Earl Wakefield et al's Burnett 1, nw ne 1-11-18w, ur 6 in 2775 ft. Billings' Smith 1, se nw 14-12-16w, swb 4 boph 16 hrs, fsg 5 in csg 3194 ft.

Western Kansas O&R et al's Schmeidler 1, nwc 22-12-17w, 2890 ft. Lario Bell 1, nw ne 8-2-18w, run 12 in 843 ft. P. G. Reynolds et al's Karlin 1, nwc 13-12-18w, co 576 ft. Skiles et al's Jensen 1, sw se ne 26-12-18w, 1360 ft co. Colonial Oil Albert 1, sw ne 31-12-18w, ru. L. M. Reynolds et al's Polcyn 1, se ne 24-13-16w, ru. Brunson Drlg. & Glimac Oil, Weisner 1, se sw se 31-13-17w, ur 10 in 1240 ft.

ELLSWORTH COUNTY—Equity Gas et al's Razac 1, ne se 31-15-10w, 2260 ft, sd. Colonial Oil, Hogy 1, nw nw sw 16-16-10w, lcn. Skiles et al's Sturn 1, se sw 31-17-9w, 3000-3023 slm.

GRANT COUNTY—Columbian Fuel's Alderman 1, c sw¼ 18-29-35w, 4 m gas, completed. Panhandle Eastern, Blake 1, c sw 21-30-36w, woc 2113 ft. Panhandle Eastern, Taggert 1, c 11-30-37w, 2¼m gas.

GREENWOOD COUNTY—Ward McGinnis et al's Henley 1, swc 25-25-9e, td 2234 ft, pb cem 6 in, woc. Western Kansas O&R et al's Taylor 1, se sw 6-27-12e, pumped 75 bbls oil and 30 bbls water in 24 hrs, completed.

HAMILTON COUNTY—Denver P&R Co. et al's Porter 1, sw ne 30-25-41w, dr 6115 ft.

HARPER COUNTY — Magnolia's Freeman 1, se nw sw 3-31-6w, dr 4713 ft.

HARVEY COUNTY—Simpson & Noble et al's Pierce 1, sw se ne 25-22-2w, td 3620 ft, D&A. E. J. Shaffer et al's Epp 1, sec 15-23-3w, td 3915 ft.

KEARNEY COUNTY—J. L. Murphy's Masonic Home 1, c ne¼ 1-26-36w, ur 8-in 1500 ft.

KINGMAN COUNTY—Carter Oil, Davis 1, c e½ ne ne 24-28-83, brr.

LOGAN COUNTY—Morgan, Flynn, Cobb et al's McMillian 1, c nw 9-13-37w, sd 3489 ft for repairs.

LYON COUNTY—Davis & Sory, Byrd 1, sw se 32-21-11e (otd 590 ft), Bartlesville sand 1853-92 ft, td; gso; td 1913 ft; 200 ft oih; 160 qts, co.

MARION COUNTY—Hutchinson Oil & Gas et al's Ehrman 1, se se sw 15-18-1e, drlg 2100 ft. Western Kansas O&R et al's Suderman 1, se sw nw 22-20-2e, dr 2475 ft.

McPHERSON COUNTY—C. E. Ash Drilling Co.'s Broman 1, ne nw 19-17-4w, dr 405 ft. Wamhoff et al's Nuse 1, se ne sw 18-18-4w, dr 1825 ft. Fred C. Frank et al's Doles 1, ne nw ne 12-19-1w, sd 2323 ft. Clyde Pulse et al's Boesker 1, se nw 29-20-1w, rig. Bradley Bros.' Barnholt 1, sw se 30-20-5w, td 3335 ft, 3100 oih, ru.

MITCHELL COUNTY—Geo. Siedhoff et al's Greis 1, nw sw se 16-8-10w, K C 2710 ft, hfw at 3483 ft, so&g 3565 ft, 5 in 3696 ft, dr 3725 ft.

NESS COUNTY—Newton Dev. Co.'s Tenny 1, nw se 19-18-25w, 3500 ft oih and 4406 ft after acid, sd. Jones & Lane, Page Milling Co. 1, se nw 36-18-26w, fsg 1040 ft.

OSBORNE COUNTY — J. E. Waldron's Neusechwanger 1, se ne nw 11-8-14w, spd & sd. Fred C. Chaddox & Atlantic, Slater 1, ne sw ne 33-10-15w, 15 in 610 ft, anhydrite 1225 ft, ur 15 percent 1240 ft.

PRATT COUNTY — Atlantic, Empire & Skelly's Runyon 1, sw nw ne 11-27-13w, 1½ boph 4293 ft. Skelly Oil et al's S. B. Adams 1, se nw ne 2-28-11w, dr 3321 ft.

RENO COUNTY—Sam Schneider et al's Kroecker 1, ne cor 12-22-5w, spd. Imo O&G et al's Watkins 1, se cor 14-22-7w, 100 ft wih, sd 3560 ft. Street & Butler, Kincaid 1, ne nw 13-24-4w, rot rig. Carter, Continental & Empire's Bortrager 1, c el ne ne 26-24-5w, 3894 ft, D&A. Helmerich & Payne et al's Haines 1, sw cor 9-25-5w, sd 3584 ft. Pryor & Lockhart et al's Stuckey 1, nw sw sw 31-25-5w, dr 3209 ft. Carey et al's McPheeters 1, ne ne nw 22-26-8w, ru.

RICE COUNTY—Gillespie et al's Strong 1, ne nw 9-18-8w, ru. John Hanna et al's Marshall 1, ne nw nw 30-1s-8w, sd 1515 ft. Bridgeport Machine et al's Habiger 1, nw cor 5-18-10w, dr 2725 ft. Republic Natural Gas et al's Oden 1, nw cor 5-21-7w, pot 2552 bo, completed. H. V. Holland et al's Brothers 1, se cor 12-21-7w, dr 3260 ft. Gerbrand-Pulse Oil & Drlg., Wellman 1, sw cor 22-21-9w, dr 910 ft. W. E. Witt et al's Fair 1, nw se se 4-22-8w, ur 8 in 2423 ft.

ROOKS COUNTY—W. W. Kiskaddon et al's Hamm 1, sw nw 25-7-19w, rig. Graham et al's Fike 1, sw cor 9-9-17w, pumped 30 oil and 48 wtr 8 hrs. C. R. Craft et al's Ziegler 1, ne sw 8-10-16w, 8 in csg at 2860 ft, rust. J. H. Lester's Metheny 1, se ne 29-10-20w, fsg 3875 ft.

RUSH COUNTY—E. Wakefield et al's Zimmerman 1, se sw 7-16-18w, dr 555 ft. Westgate-Greenland Oil, Hagerman 1, ne cor 20-19-16w, dr 2050 ft.

RUSSELL COUNTY—H. C. Eisenhour et al's Krouse 1, se nw 18-13-12w, spd and sd. Parks Opdycke 1, sw cor 20-14-13w, ru. Boyle & Grossman's Steinert Estate 1, ne se nw 34-15-15w, 3419 ft, D&A. Emrichs et al's Anderson 1, ne se sw 35-15-113, rig. Shell, Batt 1, se cor 35-15-14w, dr 3203 ft.

SEDGWICK COUNTY — Homestake Royalty, McCormick 1, sw nw 23-25-3w, dr 1600 ft. Roxana Drlg. Co. et al's Woodman 1, sw nw sw 26-26-1w, sd at 2469 ft. National Ref., Fee 1, se ne se 36-27-2e, lcn. I. W. Murfin et al's Martin 1, se nw 32-26-1e, cellar. W. C. Talbott et al's Downs Estate 1, se nw 32-28-2e, dr 1065 ft. Palmer Oil Corp., Royal 1, ne cor, dr 51 ft. Union O&R et al's Howell 1, sw cor 6-29-1e, co 830 ft. E. B. Shawver's Furman 1, sw ne se 24-29-3w, run 5 in 4022 ft.

STAFFORD COUNTY—Newman & Winemiller, Sittner 1, ne ne 33-21-12w, 7in 3360 ft, rust. W. P. Faulkner's Schulz 1, se ne 6-22-13w, ru. W. P. Faulkner's Moses 1, nw sw 9-22-13w, mim. Stanolind's Francis 1, ne nw 26-22-13w, td 3846 ft, sw, D&A. Stanolind et al's Hartnett 1, nw se 23-24-11w, 10 in 247 ft, anhydrite 820 ft, dr 2950 ft.

STEVENS COUNTY—Kuhn Bros. et al's Youngren 1, sw ne 1-32-39w, rust.

SUMNER COUNTY — Douglas & Gear's Strickler 1, sw ne ne 30-32-1w, dr 4014 ft. Graham et al's Dawson 1, nw cor 4-33-2w, ds at 4255 ft.

TREGO COUNTY—Phillips Petroleum, Trego 1, c ne nw 14-12-23w, dr 3475 ft. Central Commercial Oil, Locker 1, csw 12-14-22w, mim. F. L. Thorn et al's Koeppen 1, se sw 31-14-24w, dr 3831 ft. W. I. Southern, Inc., Latimer 1, nw se 19-15-22w, D&A.

WOODSON COUNTY—Ward McGinnis et al's Smith 1, nw se 10-24-15e, dr 1250 ft. Morris et al's Koenig 1, se nw 35-25-15e, hfw 1458 ft, sdo. Lilly et al's Wall 1, sw se se 25-25-13e, sd 1458 ft. Becker Bros. et al's Bonner 1, cel nw sw 34-25-14e, dr 1432 ft. Fred Rapp Houghland 1, nw se 2-25-15e, sd 1400 ft.

NORTH LOUISIANA

BIENVILLE PARISH—DeSoto O. & G. Co.'s Wm. Ashley 1, sw se 15-16n-10w, 7-in csg perf 5200 ft, completed as gas-distillate well, si for gauge, old td 5650 ft; Wm. Ashley 2, 15-16n-10w, lcn. Hunt & Seaboard's Commercial Bank 1, ne nw 3-16n-6w, 10¾-in csg 2250 ft, dr 2300 ft. Lide, Greer et al's Davis Lbr. Co. 2, w½ w½ 12-16n-5w, top Travis Peak 7230 ft, sd 7355 ft. McDowell et al's Locke 1, ne c 9-15n-10w, sd 2921 ft.

BOSSIER PARISH — Triangle Drlg. Co.'s Schuler Estate A-1, 13-17n-12w, spd, dr 1200 ft.

CADDO PARISH—W. J. Hunter et al's N. B. Stoer 1, 10-15n-15w, re-cemented perforations in csg at 5035-45 ft, to re-test after showing gas & sw, old td 6562 ft. R. W. Norton's Payne 1, se se 27-23n-16w, pb perf csg in Hill sand 5777-96 ft, est 10 mil ft gas daily, si for gauge, old td 11,486 ft, Permian salt. Prairie River Synd.'s Hutchinson 1, 15-15n-12w, dr 8369 ft. Fallon Oil Co.'s Cupples 1, 24-16n-13w, arr perf csg at 4800-18 ft, old td 5675 ft. United Gas R. S. Co.'s Wheeler A-1, 16-18n-16w, completed second time, gauging 2,450,000 cu ft gas and 20 bbls distillate daily after perf csg 5628-64 ft, rock pressure 1579 pounds, old td 5911 ft.

CLAIBORNE PARISH—J. R. Bevill et al's Alex Edmonds 1, ne ne 16-20n-5w, elev 160 ft, porous lime so 5398-5413 ft, set csg, acidized, flowed several hours, went dead, re-acidized, flowed 35 bbls hr through open tubing, td 5413 ft. McClanahan et al's J. T. Lewis 1, sw se 25-20n-7w, rur. J. B. Bond's Burgess 1, 3-20n-5w, rur to pb, acidize at 5300 ft, old td 5800 ft. United Gas P. S. Co.'s Brownfield et al 2, c sw se 5-19n-5w, coring 5650 ft. Stevenson 1, se sw se 6-19n-5w, owdd 4350 ft. Lyons & Neely's Sims 1, 32-20n-5w, rur.

DE SOTO PARISH—Pearl Oil Co.'s Joyner 1, 28-11n-12w, pb to 2900 ft & tested dry & abn old 5614 ft. A. D. Robinson's Allison 1, 17-14n-13w, top Nacatosh 1160 ft, top Annona chalk 1616 ft, base 1900 ft, Holly sand dry, dr 2810 ft. C. T. Ruffing's Redding 1, 35-11n-11w, sd 3010 ft. Clear Lake Oil Co.'s J. A. Woolums 1, 29-12n-12w, sd 600 ft. Lyons & Neely's J. P. Barron 1, nw se 36-11n-11w, tested sw, arr abn. Paul Miller's Barron 1, 36-11n-11w, trying shut off water flow, td 2952 ft. Gamble et al's Buskin 1, 11-10-11, mim. Pullman Oil Co.'s Ramsey 3, 36-11n-11w, making gas, water & so, td 2946 ft; Ramsey 4, ne se nw 36-11n-11w, mim. Allred & Gray's J. W. Ramsey 1, sw nw 36-11-11n, mim. O. B. Buchanan Tr.'s J. H. Butler 1, ne se 35-11-11, mim. E. M. Harter's F. Giaque 1, ne sw 36-11n-11w, mim. Skelly Oil Co.'s Cook 1, 16-10-11, dr 3434 ft lime.

FRANKLIN PARISH—Jenson et al's Grayson 1, c ne 36-12n-6e, arr pb to 1735 ft, old td 2516 ft, csg set at 1717 ft. Tensas Delta Oil Co.'s Wookland 1, 22-11n-9e, mim.

LINCOLN PARISH—G. E. Burford et al's P. N. Hanna 1, w½ se 34-18n-4w, 10-in csg set at 2430 ft in chalk, dr 2620 ft. T. L. James & Co.'s Spencer 1, ne 11-17n-4w, top massive anhydrite 4892 ft, base 5200 ft, dr 5245 ft. Lide & Greer's Causey 1, 32-19n-2w, set csg on bottom at 5822 ft, arr pb & perf at 5315-36 ft, top Travis Peak 5597 ft. Ludel Oil Co.'s Gill 1, 36-20n-2w, 10¾-in csg 850 ft, dr 1138 ft. E. T. Oakes, Easton et al's R. L. Sanderson 1, 30-18n-1w, elev 151 ft, dk.

MOREHOUSE PARISH—Rondeau et al's Clarke 1, 10-20n-7e, owdd td 3755 ft.

NATCHITOCHES PARISH—Roy Raines et al's Allen 1, 22-9n-10w, sd 220 ft.

RED RIVER PARISH—Whitehurst et al's LeLong 1, 25-12n-11w, woc 13⅜-in csg 250 ft. W. J. Hunter's Long Bell Lbr. Co. 2, 20-13n-19w, dr 1986 ft.

SABINE PARISH—Deep Rock Oil Co. et al's Whitney Corp. 1, 8-9n-13w, tested sw & sg at 5275 ft, 9-in csg 5261 ft, arr pb & perf at 4400 ft, old td 8510 ft. E. Howard's Sabine Lbr. Co. 1, ne nw 24-9n-12w, ru & sd. Romine et al's La. Long Leaf Lbr. Co. 1, 7-5-12, rur.

TENSAS PARISH—Sherrouse & Snyder's Chicago Mill & Lbr. Co. 1, 30-12n-10e, sd 798 ft.

WEBSTER PARISH — Magnolia's Aarnes-Cox 4, 22-21n-10w, woc 18⅜-in csg 840 ft. A. J. McCook 2, 22-21n-10w, dr 8162 ft. J. M. Mixon 2, 22-21n-10w, rur. Ohio's Bodcaw Ac. 2, 47, 15-21n-10w, dr 6950 ft. S. P. D. Coyle & W. Cox's 1, 25-21n-10w, lcn, spd 13-in csg 802 ft. Thos. Crichton Ac 2, 1, 21-21n-10w, dr 6812 ft. R. L. Holloway B-7, 23-21n-10w, 9⅝-in csg 5557 ft, dr 6566 ft. A. G. Oliphant et al's Sam Banks 1, 34-21n-10w, dr 5990 ft. Standard Oil Co. of La.'s Davis 7, 23-21n-10w, spd, dr 2993 ft. Mrs. M. E. Gray 2, ne nw 26-21n-10w, spd dr 3055 ft. Standard of La.'s E. L. Stewart 1, c se se 32-21n-10w, elev 240 ft, cored sat Bodcaw sand 8585-8631 ft, cemt csg, woc td 8631 ft.

WINN PARISH—Georgetown Oil Co.'s Tremont Lbr. Co. 1, 19-10n-1e, sd 1600 ft. G. W. Zeigen's La. Central Lbr. Co. 11, sw nw 11-13n-1e, rur.

SOUTH LOUISIANA

ACADIA PARISH—W. C. Daniel's Setting 1, Trilby prospect, 17-9s-1w, dr in straight hole, old td 5426, pb to redrill. Humble's Federal Land Bank 1, North Crowley prospect, 34-8s-1e, fsh for 3110 ft stuck drill pipe, td 9339 ft. J. G. Markley's Ed Daigle Farms Co. 1, Churchpoint prospect, 19-7s-2e, dr hard shale 310 ft.

AVOYELLES PARISH—Coastal Minerals Development Co.'s Purdy Hess 1, 25-2n-3e, abn 6654 ft.

CALCASIEU PARISH—D & D Oil Co.'s Lutcher Moore 1, nw of Starks, 1-8s-13w, dr hard shale 5690 ft, no oil show reported. Stanolind's Prairie Land & Canal Co. 1, South Lake Charles prospect, 10-11s-9w, dr shale and streaks hard sand 9124 ft.

CAMERON PARISH—Humble's Bell Hanszen 1, Chakley prospect, 5-12s-6w, abn 9628 ft; same operator's Miami Corporation 1, Prema area, 8-14s-5w, dredging canal. Pure's State Mallard Bay 2, Mallard Bay prospect, 14-13s-3w, dr hard sand 6906 ft. Superior's State 1, in Gulf of Mexico, 4-15s-8w, driving piling.

EAST BATON ROUGE PARISH—Cavalier's Elliott 1, n of Hope Villa, 3-8s-2e, sd, awaiting orders.

EVANGELINE PARISH — Continental's Tate 1, 44-3s-2e, dr sandy lime 8580 ft.

IBERIA PARISH—Jefferson Lake's Lake Peigneur 414, 12s-5e, dr below 7071 ft, tested sw and some oil 7060-71 ft. Texas Co.'s State Vermilion Bay 2-B, Vermilion Bay prospect, 16s-5e, moving in heavy drilling barge.

JEFFERSON DAVIS PARISH—Stanolind's Calcasieu National Bank B-2, China prospect, 28-7s-2w, pb to 8954 ft, td 9781 ft, to test sands from 8955 to 8965 ft. Union Sulphur's T. R. S. Farms 1, South Roanoke area, 23-10s-4w, set 7-in cas on bottom, td 9151 ft, reported oil showing.

LAFOURCHE PARISH—Amerada and Louisiana Land's South Coast Corp. 1, Raceland area, 34-15s-19e, ru. Gulf's State PP 3, sw of Marchland prospect, 36-23s-21e, dr shale 6846 ft. William Helis, City of New Orleans 2, Bay Marchand prospect, 19-23s-23e, lcn.

LIVINGSTON PARISH—Neville & Grubbs' Evans 1, Mallet Bluff area, 47-7s-3e, drill stem stuck at 7200 ft, td 7598 ft.

PLAQUEMINES PARISH—Gulf's State QQ 3, Quarantine Bay, 17-19s-17e, dr surface gravel 559 ft.

ST. BERNARD PARISH—Southern Sulphur Co.'s State 2, in Lake Borgne, 38-14s-15e, repairing rig 3442 ft.

ST. LANDRY PARISH—Gulf's Haas Hirsch 1, Krotz Springs area, 12-6s-7e, abn shale and streaks sand 8483 ft.

ST. MARTIN PARISH—Texas Co.'s St. Martin Land Co. 10, Henderson prospect, 15-8s-7e, dr shale 1400 ft; same operator's State Mongouloi 3, Lake Mongouloi prospect, 14-10s-9e, abn 6870 ft, former td 8208 ft.

ST. MARY PARISH—Texas Co.'s State Bateman Bay 1, s of Morgan City, 21-16s-12e, cmt 10-in cas 10,515, td 10,541 ft; same operator's Horseshoe Bayou 1, on Horseshoe Bayou, 40-17s-9e, completed as discovery well, td 10,929 after pb; initial prod 1152 bbls.

VERMILION PARISH—Continental's Brookshire 1, Abbeville area, 66-12s-3e, dr shale 11,256 ft.

VERNON PARISH—Castor Creek Dr. Co.'s Llano Del Rio 1, 34-2n-9w, dk.

MICHIGAN

ALLEGAN COUNTY—Champion Oil Co.'s Detling 1, 35-2n-13w, dr 700 ft; Siko 1, 9-1n-12w, lcn; Young 1, 26-1n-12w, dr 190 ft. Hubel Oil Co.'s Madalinski 1, 18-1n-13w, testing Traverse, so. James Flannigan's Brown 1, 29-1n-13w, sd 810 ft. John Arlen's Barnicle 1, sec 33-2n-14w, mim.

ARENAC COUNTY—Gordon Oil Co.'s State B1, 2-19-3e, dr 2890 ft. Joseph Zucker's Reed 1, se se nw 10-19n-5e, dr 400 ft. Harvey Linabury's Smith 1, 17-19n-6e, dr 1100 ft. B. A. Bartlet's Flip 1, 32-19n-4e, fsg 2800 ft.

BAY COUNTY—Wright & Keeler's Booth 1, 24-14n-6e, dr 1800 ft.

CASS COUNTY—L. T. Barber's Beebe 1, 3-5s-15w, cmt 1700 ft. Wayne Oil & Gas Co.'s Gebhard 1, 34-5s-15w, dr 540 ft.

CHEBOYGAN COUNTY — Bert Francis' Campbell 1, 7-34n-1w, sd 280 ft.

CLARE COUNTY—Pure Oil Co.'s Apel 1, 31-19n-5w, dr 2700 ft. James Peirce's Mortenson 1, 32-18n-5w, sd 1569 ft; Presley 1, 32-17n-3w, dr 230 ft.

CRAWFORD COUNTY — Dome Oil Co.'s Lindgren 1, 33-25n-3w, rig.

EMMET COUNTY—Cheboygan Oil Co.'s McPhee 1, 15-35n-4w, dr 260 ft.

GLADWIN COUNTY—Mammoth Producing & Ref. Co.'s Nunn 1, nw ne nw 18-17n-2w, dr 230 ft. Dibble Brothers' Delbridge 1, 1-17n-2e, dr 500 ft. Harold Hand's Smart 1, 29-17n-2e, dr 2900 ft. F. C. Stover's Bushong 1, 16-18n-1e, dr 790 ft. Dibble Brothers' Kimble 1, 16-18n-1e, sd 3375 ft. W. H. Thourbly's Kliz 1, 28-18n-1e, lcn. J. Ross' Loyengood 1, 16-18n-1e, lcn. D. E. Hughes' Cox 1, 12-19n-2w, dr 170 ft. C. B. McLaughlin's Simmons 1, 28-19n-2w, sd 260 ft. Dapar Oil Co.'s Villeneuve 1, 11-20n-2w, dr 1100 ft.

GRATIOT COUNTY—Sam Siegel's Kerr 1, 36-10n-1w, sd 2250 ft.

HURON COUNTY—C. W. Teater's Haldane 1, 30-16n-12e, dr 3000 ft.

IOSCO COUNTY—Pabst Oil Co.'s Monfort 1, 8-22n-6e, reaming 3350 ft.

ISABELLA COUNTY—C. E. Weller's Cotter 1, 11-15n-5w, dr 1000 ft. Boston Oil & Gas Co.'s Fox 1, 23-15n-5w, sd 815 ft. James Peirce's Herman 1, 4-16n-3w, mim.

LIVINGSTON COUNTY—O. A. Daniel's Boardway 1, 17-4n-3e, dr 610 ft.

MECOSTA COUNTY — McHardy Synd.'s Gingrich 1, 12-15n-7w, dr 3600 ft.

MIDLAND COUNTY—Sun Oil Co.'s Consumers Power 1, 8-16n-1w, dr 2200 ft. T. F. Caldwell, Inc.'s Kriegel 1, 36-15n-1w, dr 3600 ft. Mammoth Producing & Ref.'s Fee 1, 8-16n-1w, mim.

MISSAUKEE COUNTY—Rex Oil & Gas Co.'s Meekoff 1, 30-21n-6w, dr 3550 ft.

NEWAYGO COUNTY — Muskegon Dev. Co.'s Carlson 1, 9-16n-12w, dr 3160 ft.

OTSEGO COUNTY—D. Geraldine's Fee 1, 34-30n-3w, lcn. Harley Williams' Raae 1, 15-30n-1w, dr 2460 ft. Barton & William's Yuill 1, 9-32n-3w, dr 400 ft.

ROSCOMMON COUNTY—Seger & Swan's Barnett 1, 36-21n-1w, dr 1185 ft.

SANILAC COUNTY — T. H. Ferguson's Obee 1, 17-14n-14e, sd 550 ft.

ST. CLAIR COUNTY—J. B. G. Co.'s Baldwin 1, 31-7n-17e, dr 180 ft.

TUSCOLA COUNTY—C. W. Spaulding's Dalrymple 1, 35-10n-7e, dr 2200 ft.

MISSISSIPPI

BOLIVAR COUNTY—Phillips Pet. Co.'s Perthshire 1, 2-24n-7w, dr 5602 ft hd rock.

CALHOUN COUNTY—B. G. Dowell's H. D. Hughes 1, 18-23n-9e, spd. Ed. Spencer's J. C. Conner 1, se ne 12-24n-8e, lcn.

CLAIBORNE COUNTY — Claiborne O&G Drlg. Co.'s Crawford 1, 6-13n-4e, sd 2210 ft, repr equipment.

HANCOCK COUNTY — American Sulphur Co.'s Ladner 1, sw nw 17-9s-14w, dr 1905 ft shale.

KEMPER COUNTY—R. A. Keaton et al's Buckwalter Lbr. Co. 1, nec 6-10n-14e, dk.

LAMAR COUNTY—Sun Oil Co. et al's Mrs. Kate Talley 3, 1600 ft s and 1350 ft e nwc 33-4n-15w, elev 388 ft, tested 5 joints mud and water 5934-59 ft in 20 minues, coring shale and dead oil sand 6020 ft.

MADISON COUNTY—Sun Oil Co. et al's J. E. Wilson 1, se se 1-8n-2w, elev 218 ft, dr 4415 ft shale and lime.

PIKE COUNTY — Acadian Prod. Corp.'s Bales 1, se nw 24-7n-2e, dk.

SUNFLOWER COUNTY — Phillips Pet. Co.'s Dockery 1, sw ne 27-22n-4w, rur.

WILKINSON COUNTY—Chas. Green et al's Julian Taylor 1, 4-3n-1e, elev 251 ft, woc 10¾ in csg, td 600 ft. H. L. Carnahan et al's Foster Creek 1, 1-2n-2w, spd dr 1156 ft shale.

OKLAHOMA

ADAIR COUNTY—B. L. Maddox's Penn Mutual Life 1, c nw sw 11-9-11e, dr 215.

ATOKA COUNTY—A. L. Larson's Mason 1, sw se se ru mach. C. M. Sheldon & Gard-

Wells in Ark-La-Tex

Ark-La-Tex, by the way, is a trick name thought up by our Chamber of Commerce to designate the Louisiana-Arkansas-Texas tri-state area. We started out to say that wells in Ark-La-Tex have been drilled and produced for more than thirty years with supplies and equipment furnished by PELCO. And we must have done a fairly acceptable job, because business grows to beat the band. You might think that over.

PELICAN

WELL TOOL & SUPPLY COMPANY

SHREVEPORT, LOUISIANA

Lake Charles—Houma—Converse
New Iberia—Rodessa—Monroe—Cotton
Valley—Turnertown—Greggton—Houston

ner Petroleum Co.'s Lee 1, ne nw sw 2-4s-10e, ru mach.

BECKHAM COUNTY—Bud Lewis' Dougler 1-A, cse ne 21-8n-26w, dr 1785 ft. Mid-American Oil Co.'s Biscoe 1-A, sw c 28-8n22w, sd at 2200, wih.

BRYAN COUNTY — Southern Oil Co.'s Henry 1, cnw ne 10-8s-7e, loc.

CADDO COUNTY—Clyde Becker et al's Pharris 1, se se nw 24-6n-12w, sd for w, 6235 ft. I. T. I. O. et al's Dome-bo 1, c ne se 29-6n-10w, pits.

CLEVELAND COUNTY—H. R. Hollenbach's Norman 1, nw nw ne 17-9n-2w, pb and drilling at 5672 ft.

CHOCTAW COUNTY—V. K. Chapman & T. N. Lows Hallum 1, nw c 4-7s-20e, spd & sd.

COAL COUNTY—Phillips Pet. Co.'s Beck 1, se sw sw 6-1n-9e, dr 1190 ft. Carter Oil Co. et al's Claytor 1, w½ ne sw 27-2n-9e, dr and test, 4320 ft. Carter Oil Co. et al's Thimpson 1, c s½ ne nw 34-2n-9e, ow pb and recomplt after acid 35 bo at 6200 to 6235 ft.

COMANCHE COUNTY—M. J. Andrichak's Korthouse 1, sw nw nw sw 35-2n-10w, dr 380. Frank Scott's Kuntz 1-A, se ne se 21-4n-11w, sd 2793 ft.

COTTON COUNTY—Bowers & Wise's Pendergraft 1, nw se sw 4-4s-12w, rig.

CREEK COUNTY—M. W. Mosier et al's Holcomb 1, se sw ne 19-18-8e, so and sd. L. B. Jackson's Alberty 1, ne ne nw 25-18-9e, 1350 ft ur 10-in csg.

GARVIN COUNTY—Carter Oil Co.'s Potts 1, ce½ se nw 36-1n-3w, test 1347 ft. B. C. D. Edward's Clark 1, ne c 16-3n-3e, dr 900 ft.

GRADY COUNTY—Gulf Oil Corp.'s Thomas 1, sw nw nw 14-4n-5w, fsg 6349 ft. Doyle Pet. Co.'s Huffine 1, nw nw se 30-5n-8w, rig.

GRANT COUNTY—Carter Oil Co. et al's Crissman 1, nw sw nw 16-25n-3w, 400 ft oil & mud from Wilcox at 5403 ft, td, testing. Carter Oil Co. et al's Kolarik 1, csl s½ sw 4-26-5w, 5852 d & a.

GREER COUNTY—J. I. Medlin's Broud'e 1, nw c 5-6n-20w, rur.

HASKELL COUNTY—Continental Oil Co.'s Ferguson 1, sw se ne 33-8n-20e, dr 6032 ft.

HUGHES COUNTY—Carter Oil Co. et al's Hamilton 1, c w½ ne sw 98 oil 10w, 24 hrs at 5994 ft, to perforate csg. Phillips Pet. Co.'s Becker 1, ne nw sw 8-5n-10e, mit. H. H. Ellis' Tiger 1, nw se sw 29-6n-8e, sd 550 ft. E. H. Moore, Inc.'s Buck 1, c nw sw sw 21-8-10e, 3281 ft. co. W. O. Allen et al's Barnard 1, sw c 24-8-8e, 2800 ft fluid, testing. The Texas Co.'s Cox 1, ne nw nw 23-9-8e, sw at 2500, to dd. Moroney & Healey's Field 1, c nw sw 11-9-11e, est. two-fifths million gas 2793 ft, dd 3476 feet and sd.

JACKSON COUNTY—Ace Gutowsky et al's Lee 1, nw aw se 36-2n-19w, lcn; Booker 1, nw nw nw 33-2n-18w, so 580 ft, td, sd contractor. W. W. Gutowsky et al's Howard 1, ne sw nw 10-3n-19w, fsg 950 ft.

JEFFERSON COUNTY—Massad & Swainberger's Barett 1, ne se se 14-6s-6w, sd 1842 ft.

JOHNSTON COUNTY—Patten et al's McCrummens 1, sw sw ne 16-1s-6e, sd 1165. Shelton's Chapman 1, c nw nw 26-4s-6e, wocs 62 ft.

KAY COUNTY—Fortuna Oil Co.'s Harris 1-A, sw sw ne 14-25n-1e, sd 383 ft. Black Gold Oil Co.'s Cooley 2, sw sw sw 25-28n-4e, 2187 ft d & a.

KIOWA COUNTY—E. L. Lippert's Miller 1, nw c 14-2n-18w, dr 83 ft. Kiowa Oil Co.'s Finder 1, c sw ne 4-6n-20w, fsg 1050 ft. Hughes & Reese Fultz 1, se c 10-6-18w, sd 600 ft.

LATIMER COUNTY—Clark Drilling Co.'s Wilson 1, c se se 15-5-18e, blow out after perforation 2950 ft and well killed.

LINCOLN COUNTY—Continental Oil Co. et al's Community 1 nw nw se 7-15-5e, lcn. Cimarron Oil Corp. & Harper-Turner's Orner 1, c sw se 31-17-2e, sd for w 4324 ft.

LOGAN COUNTY—Shell Pet. Corp. et al's Waddle 1, sw se nw 36-15-4w, dr 6259 ft. Anthony & Marshall's Fruin-Eckman 1, se se sw (otd 5285 ft) 4-16n-1e, 4975 ft, so&g sd. Sunray & Olson's Canning 1, sw sw ne 31-17n-1w, snd and sd. Freeland et al's Woods 1, se se sw 28-17n-1e, rig.

LOVE COUNTY—Sinclair Prairie Oil Co.'s Stockton 1, se sw 26-6s-2w, ran 2½ tubing to 6127 ft and flows 50-75 bod intermittently.

MAJOR COUNTY—Ed. V. Parson's Patzkowsky 1, c nw¼ 10-20-11w, rig.

MARSHALL COUNTY—Paul Robb et al's Vittitoe 1, c ne se 11-5s-4e, ow dd co at 720 ft. (otd 5461 ft)

McCURTAIN COUNTY—Wilcox Oil & Gas Co.'s Neuman 1, sw se sw 30-7s-23e, 1380 ft, hfw d&a.

MURRAY COUNTY—Power Oil Co. et al's Lancaster Trust 1, c sw ne 10-1s-2e, fsg drill pipe 3714 ft. O. O. Owens' Gryer 1, ne se ne 34-1s-3e, 1400 wih 2574 ft, sd. Meyer & Greenup's Arbuckle Royalty 1, nw nw ne 18-2s-3e, spd and sd.

MUSKOGEE COUNTY—F. E. Cusack's Elliott 1, cnl nw sw 20-15-20e, rog; Fee 1, ne sw se 20-15-20e, to spd.

NOBLE COUNTY—Seaboard Western Oil Co.'s Guthrie 1, nw nw ne 6-20n-2w, lcn. Herndon drlg. Co. and Atlantic's Baggett 1, se se se 13-21n-3e, dr 4044 ft. Phillips Pet. Co.'s Neil 1-A, ne c 15-23n-2w, sw 5200 ft and comp for sw disposal well.

OKFUSKEE COUNTY—Burke-Greis Rhea 1, sw se 14-10-9e, 1780 ft fsg, bailer. F. W. Merrick's Mackey 1, ne ne sw 29-11-10e, dry sand at td 2045 ft.

OKLAHOMA COUNTY—Frank Buttram et al's Cole 1, nw c 16-14-1e, dr 3665 ft.

OSAGE COUNTY—National Ref. Co.'s Page 2, nw sw se 28-22-9e, lcn.

PAYNE COUNTY—H. S. Brim et al's McKenzie 1, cwl se ne ne 13-18-3e, pits.

PITTSBURG COUNTY — Okla. Dist. Oil Co.'s Beeler 1, ne ne sw 7-7-14e, bailing 4600 ft, ssg.

PONTOTOC COUNTY—Caloma Oil Corp.'s Brentz 1, se ne sw 4-1n-6e, sd 1010 ft. Blackstock et al's Thompson 1, ne c 4-1n-7e, flow 31 bo csg 24 hrs and 5/5 gas, comp. Norbla Oil Corp.'s McBride 1, ne ne sw 10-2n-5e, dr 250 ft. C. W. Roodhouse et al's Booth 1, se nw se 20-2n-6e, flow 60 bo head per day on test. Union Dev. Co.'s Abbott 1, sw nw ne 34-3n-6e, dr 3055 ft. Southern Oil Co.'s Young 1, ne ne se 17-3n-7e, 2380 ft d&a. Kerlyn Oil Co.'s Pratt 1, sw se ne 6-4n-4e, ur 10-in 621 ft. Boettcher O&G Co.'s Gann 1-A, se nw ne 25-4n-7e, fsg drill pipe 4347 ft.

POTTAWATOMIE COUNTY — Richborn Oil Co.'s Fidler 1, nec 9-5-5e, ru & sd. High tower's Baker 1, se se nw 27-6n-3e, rig. Roy S. Nash et al's Miller 1, cn½ ne se 29-6-3e, co below 3800 ft. British-American's Ramsey 1, se ne 27-6-4e, dr plugs 3609 ft. Mid-Continent Pet. et al's Ne-Tah-Pea-Se 1, se se ne 24-11n-4e, swb 210 ft bo after inactive 20 hrs. Atlantic Ref. Co.'s Dooley 1, se se sw 9-11n-5e, pb 4770 ft and bailing.

PUSHMATAHA COUNTY—Erle Halliburton et al's Bagwell 1, sw ne ne 30-3s-15e, pb in crooked hole and to survey.

SEMINOLE COUNTY — Stanolind-Amerada & Mid-Continent Pet. Co.'s Salina 1, se ne nw 4-5-6e, 3184 ft woc. Gillespie & Moore's Gaines 1, ne sw sw 20-6n-7e, cor 2709 ft. J. F. Root's Cone 1, nw ne sw 11-7n-5e, pits Phillips Pet. Co.'s Gilcrease 1, nw nw se 16-7-12e, mit. E. W. Jones et al's Belford 1, ne se ne 9-9-8e, dr 2485 ft. Atlantic & Gulf Oil Corp.'s Decker 1, sw c 32-11n-6e, co 4368 ft.

STEPHENS COUNTY — Coline Oil Co.'s Johnson 1, sw se ne 1-2n-8w, dr 8625. Ed Parson et al's Blake 1, c sw nw 22-2n-8w, 4966, woc. Chas. Newsom's Pfile 1, sw sw sw 1-2s-7w, sd 115 ft. Jack Cohen's Peirce 1, ne ne nw 24-2s-6w, dr 770 ft. Carter Oil Co. et al's Harley 1, c ne ne 24-2s-4w, woc 7475 ft after so.

TILLMAN COUNTY—I.T.I.O.'s Graham 1, se se ne 1-3s-19w, dr 1816 ft. Gulf Oil Corp.'s Prichard 1, 32-3s-16w, rur. Tom Walker's Bowman 1, sw sw nw 10-4s-17w, sd 20 ft. Caven et al's Southerland 1, sw sw nw 35-4s-16w, ru & sd. Shirley Clum et al's Moriele 1, nw nw se 2780 ft, d&a.

WASHITA COUNTY—L. B. McWhirter's Fee 1, nw sw sw 34-8-19w, sd 1810 ft. John Koberg's Harms 1, nw nw ne 6-10-16w, dr 4110 ft.

EAST TEXAS

ANDERSON COUNTY—C. & G. Oil Co. et al's F. A. Newsom 1 (30-ac), T. C. Lively sur, Percilla area, elev 486 ft, Pecan chalk 4635-4870 ft, top Austin chalk 5625 ft, coring 5650 ft. Humble O&R Co.'s Suie Hassell 1 (80-ac), Jas. Beard sur, 2 mi n Jarvis, re-cem 13-in cas 1376 ft. Roeser & Pendleton, Inc.'s V. W. Bowyer 3 (200-ac), E. Ritter sur. Cayuga field, elev 317 ft, top Woodbine 3991 ft, top Georgetown 4749 ft, anhydrite 7110-7478 ft, used 10,000 gals acid in lower Glen Rose at 7676 ft, showed little oil, pb to 4084 ft to complete as gasser.

BOWIE COUNTY—Russell & McGuire (was Fay T. Chew and Brassett's) B. Barkinson 1 (90-ac), J. W. Parkman sur, 2½ mi n Leary, elev 312 ft, sd 2850 ft. Ferguson & Hill's A. Y. Breckenridge 1 (412-ac), Nancy Dycus sur, 4 mi w Texarkana, top Annon chalk 1308 ft, top Blossom sand 2063 ft, dr 2910 ft. Woodley & Bentley's J. D. Lumpkin 1 (245-ac), John McDermott sur, 1¼ mi sw Dalby Springs, elev 290 ft, Annona chalk 1665-2090 ft, pb fr 4404 to 1300 ft, dr by junk, sd in new hole 4843 ft.

CHEROKEE COUNTY—Merica Oil Co. & W. L. Stone's Cherokee Dev. Co. 1, A. J. Acker sur, 2 mi e Maydelle, mim.

ELLIS COUNTY—Gigantic Oil Co., Inc.'s C. H. Sullivan 1 (90 2/3-ac), Simon Garcia sur, 4 mi n Frost, top Paluxy 3018 ft, fsh 3700 ft.

FREESTONE COUNTY—Holt, Young & Nannly's W. H. Chambers 1 (125-ac), W. D. Allison sur, 2¾ mi n Keechi, dr 3130 ft. C. E. Rossiter et al's J. P. Fulton 1 (441-ac), J. P. Fulton sur, sd 956 ft. L. R. Stroud & C. A. Buzzard's Sneed 1, R. D. Sloan sur, 6 mi ne Fairfield, co 540 ft.

GREGG COUNTY—Humble & Gulf Oil Corp.'s E. D. Robinson 1, M. Mann sur, about 4 mi e of prod, Trinity test, mim.

HENDERSON COUNTY—American Liberty Oil Co. et al's E. B. LaRue-Johnson 1, blk 11, Phillip Jackson sur, 2 mi w LaRue, Trinity test, mim. Wm. McDougal, Tr., et al's Trinity Farm Securities Co.-R. M. Manning 1 (200-ac), H&TC Ry. sur, 4 mi s Malakoff, dk. Tide Water Associated-Seaboard & Humble's McElreath-Suggett 2-C (149-ac), W. P. Wyche sur, 1½ mi nw Opelika, elev 452 ft, top Woodbine 4450 ft, top Georgetown 5070 ft, top Paluxy 6087 ft, top first Glen Rose 6282 ft, top anhydrite 6991 ft, massive anhydrite 7315-7713 ft, flowed water at 7830 ft, coring 8260 ft.

HOUSTON COUNTY — American Liberty Oil Co. et al's J. A. Bean 2 (30-ac), Wm. Burke sur, Grapeland area, mim.

HUNT COUNTY—Bauersfield & Aue, Inc. (was Texola Land Corp.'s) J. M. Goin 1, (250-ac), Jas. Merrick sur, 2 mi sw Wolfe City, elev 606 ft, sd 1010 ft.

KAUFMAN COUNTY—J. M. Scott-J. B. Woodside et al's Wood & Temple Nash 1 (80-ac), Juan Cortez sur, 1 mi e Scurry, elev 401 ft, top Woodbine 2270 ft, top Georgetown 2849 ft, td 3015 ft, to cem whipstock.

LEON COUNTY—J. W. Kelley & Fox's L. W. Bryant 1 (48-ac), A. M. Coulter sur, 1 mi ne Marquez, mim.

LAMAR COUNTY—Blackman & H. W. McGee's J. M. Duff 1 (75-ac), J. C. Lamb sur, near Powderly, sd 1022 ft. A. W. Walker, Tr., and J. H. Blackburn's R. L. Rose-Federal Land Bank 1 (160-ac), A. M. Nowell sur, 1½ mi e Faught, elev 501 ft, top Paluxy 1511 ft, top Schist 2609 ft, dry and abd 2685 ft.

LIMESTONE COUNTY — Pure Oil Co.'s Kendrick 16-T, (96-ac), 3 mi w Mexia and in field, elev 508 ft, top Woodbine 2896 ft, top Georgetown 3365 ft, top first Glen Rose 4270 ft, top broken anhydrite 5132 ft, top Travis Peak 5656 ft, td 6384 ft, recem whipstock to dr by junk. Stanolind O&G Co.-Ramsey Pet. Corp.'s T. Norris 1 (40-ac), K. Thrasher & H&TC Ry. sur, 5 mi n Kosse, Trinity test for Thornton fault, mim.

MORRIS COUNTY — Joiner Oil Corp.'s Morris Sheppard 1, MEP&P Ry. sur, 3 mi nw Naples, elev 315 ft, dk. J. O. Whittington et al's Joiner Leasing Co. 1, T. C. Ry. sur No. 734, 8 mi nw Naples, rur.

NAVARRO COUNTY—Mues & Low's (was L. N. McCullough et al) Berry Bros. 1 (35-ac), W. W. Moss sur, 1 mi n Dawson, Austin chalk 751-1060 ft, top Woodbine 1384 ft, sd 1600 ft. Tom Sharp et al's E. B. McDowell 1 (65-ac), T. J. Jordan sur, ½ mi s Bazette, sd 2300 ft.

RED RIVER COUNTY—J. S. Abercrombie Co.-Harrison Oil Co.'s E. W. Bowers-L. Grant 3 (337-ac), P. D. Midkiff sur, lcn. Texas Trading Co., Inc.'s Southern Pine Lumber Co. 1 (102-ac), D. D. Bruton sur, 12 mi n Clarksville, sd 1950 ft.

RUSK COUNTY—Nivla Oil Corp. et al's Citizens Nat'l Bank 1 (50-ac), M. D. Carmel sur, 2½ mi se Henderson, elev 471 ft, top Georgetown lime 3340 ft, first anhydrite 5515 ft, massive anhydrite 6175-6395 ft, coring 6451 ft.

TITUS COUNTY—J. N. Buchanan & G. E. McGrede's Mrs. Cal Russell 1, J. M. G. Rutherford sur No. 467, 8 mi w Daingerfield, elev 326 ft, temp abnd 2400 ft.

EAST TEXAS BORDER COUNTIES

HARRISON COUNTY—J. B. Bond's Bailey & Martin 1, Geo. Mart'n sur, elev 299 ft, 10-in csg 797 ft, top Pecan Gap 1790 ft, dr 2295 ft. Highway 80 Oil Co. of Texas' Mable George 1, J. S. Powell sur, elev 279 ft, ran electrical tester, sd 2506 ft.

MARION COUNTY—Ark. La. Gas Co.'s J. P. Fant 1, L. P. Cadenhead sur, elev 366 ft, mo tub after pb to 6183 ft, td 6188 ft. Emma Ford 1, A. de los Santos Coy sur, base massive anhydrite 5920 ft, top Hill sand, 5952 ft, Henderson sand 6034-6052 ft, coring 6066 ft. Mid-Continent Pet. Co.'s Sory 2, A. de los Santos Coy sur, dr 5367 ft; Sory 3, A. de los Santos Coy sur, dr 3882 ft. Fohs Oil Co.'s Mary McReynolds 2, A. de los Santos Coy sur, woc 1971 ft. The Hunter Co.'s Henry W. Fonda 3, A. de los Santos Coy sur, dr 5165 ft. Gulf's Lizzie Henderson 1, R. Bennington sur, dr 5048 ft. Shell's Henderson 1, R. Bennington sur, spd woc surf csg. Holcomb & Thomasson's Hilliard & Womack 1, R. Bennington sur, dr 4417 ft.

PANOLA COUNTY—Danciger O&R Co.'s J. W. Tatum 1, Alfred Bissell sur, elev 293 ft, dr 4768 ft. Magnolia Pet. Co.'s E. A. Hull 2, Thos. Applewhite sur, elev 222 ft, dr 7721 ft.

SHELBY COUNTY—Portox Oil Co.'s Pickering Lbr. Co. 3, A. Hanson sur, elev 213 ft, 7-in csg 5069 ft, tested gas, so and flow sw, arr test again, td 5090 ft. Wm. Redditt's Pickering Lbr. Co. 1, S. English sur, completed gauging 4,780,000 ft gas, td 4110 ft. Allen et al's George 1, C. C. Tutt sur, woc 300 ft. Logansport P. L. Co.'s Rushing 1, Mannon Smith sur, tested show oil after acidizing, sd 3010 ft. C. M. Cope's Pickering Lbr. Co. 1, S. English sur, rur.

WEST TEXAS

(This report confined to north portion of Permian basin).

ANDREWS COUNTY—W. G. Blanchard & H. J. Porter's Cox-Amerada 1, c sw sw PSL sec 14, blk A-55, top anhydrite 1595 ft, sul water 4670-4800 ft, dry and abd. M. J. Delaney & American Liberty Oil Co.'s H. A. Moore-Gulf 1, sec sw¼ PSL sec 12, blk A-20, elev 3178 ft, top anhydrite 1960 ft, co after 600-qt shot 4442-4572 ft, td 4579 ft. Drilling & Exploration Co., Inc.-Fuhrman Pet. Corp.'s Munger-Nix 1, c sw¼ PSL sec 20, blk A-47, lcn; Thornberry 1, sec nw¼ PSL sec 8, blk A-42, lcn. H. S. Forgeron et al's Lockhart-Brown 1, c ne ne PSL sec 20, blk A-41, sd 179 ft. C. L. Peters & A. Hargraves' J. Riordan 1, c sw nw PSL sec 10, Blk A-44, elev 3163 ft, top anhydrite 2020 ft, top salt 2080 ft, top Yates 3260 ft, dry and abd 5013 ft.

BAILEY COUNTY—Geo. Etz & E. H. Robertson's I. C. Enochs 1, c labor 66, league 182, Floyd C.S.L. sur, cem sur cas. J. O. Whittington et al's McCelvey Bros. 1, c labor 15, league 161, Presidio C.S.L. sur, lcn.

COCHRAN COUNTY—The Texas Co.'s C. C. Slaughter 1 (3492-ac), sw part league 130, Carson C.S.L. sur, elev 3808 ft, top anhydrite 2275 ft, dr plugs with cable tools, td 4361 ft. P. N. Wiggins, Jr.-C. Ed. Hyde et al's C. S. Dean-Slaughter 1, labor 26, league 92, Lipscomb C.S.L. sur, elev 3730 ft, top anhydrite 2270 ft, top Yates 2868 ft, top lime 4220 ft, rust at 4800 ft; C. S. Dean-Slaughter (Honolulu) 1, nec league 58, Martin C.S.L. sur, rur.

DAWSON COUNTY—Ray Albaugh et al's Higginbotham 1, labor 24, league 269, Moore C.S.L. sur, lcn; D. Hogg 1, c se se T. P. Ry. sec 17, blk 34, T-4-N, elev 2895 ft, top anhydrite 1475 ft, dr 1720 ft. Ernest L. Wilson, Atlantic Ref. Co. et al's Scanlan Bros. 1, c nw nw of E. L. & RR Co. sec 83, blk M, elev 3111 ft, top anhydrite 2105 ft, top Yates 2880 ft, top lime 4460 ft, dr 4800 ft.

GAINES COUNTY—Amerada Pet. Corp.'s C. M. Armstrong 1, c nw nw sec 456, blk G, CCSD&RGNG Ry. sur, elev 3612 ft, top anhydrite 2107 ft, top Yates 3035 ft, top first lime stringer 4020 ft, oil saturation 4949-53 and 4959-73 ft, dr with cable tools 5019 ft; First State Bank (Seagraves) 1, c se se PSL sec 66, blk AX, dr 220 ft; R. A. Cox 1, nwc sec 380, blk G, elev 3554 ft, top anhydrite 2076 ft, top salt 2190 to 2880 ft, top Yates 2955 ft, dr 4615 ft; S. E. Smith 1, nec PSL sec 382, blk G, dr 145 ft; Flo Matthews 1, nec sec 417, blk G, elev 3557 ft, top Yates 2975 ft, top anhydrite 2079 ft, salt series 2196-2819 ft, top brown lime 3930 ft, top solid lime 4250 ft, saturated lime 4902-50 ft, td 5018 ft, used 1000 gals acid, swabbing oil and water. Argo Oil Corp.'s E. H. Jones 1, c ne¼ PSL sec 2, blk A-7, elev 3669 ft, top anhydrite 2080 ft, salt series 2260-3025 ft, top Yates 3075 ft, first lime stringer 4340 ft, top solid lime 4630 ft, little oil saturation topped at 5090 ft, dr 5100 ft. Amon G. Carter et al's J. R. Sharp 2, swc PSL sec 47, blk AX, elev 3535 ft, top anhydrite 2080 ft, top first lime 3950 ft, saturation 4894-4900 ft, td 5000 ft, used 1000, 2000 and 6000 gals acid, flowed 1172 bbls oil and 1,230,000 ft gas on pot'l gauge; E. C. Brand 1, sec PSL sec 54, blk AX, lcn. Continental Oil Co.'s E. H. Jones 1, c se ne PSL sec 22, blk A-7, elev 3650 ft, top anhydrite 2060 ft, base salt 3080 ft, top Yates 3140 ft, top lime 4020 ft, used acid at 4959 ft, swab 8 bbls per hr, dd to 5040 ft, used acid and swabbed little oil, dd to sul w at 5156 ft, pb to 5020 ft, testing; W. McCarty Moore 1, swc PSL sec 46, blk AX, elev 3549 ft, top anhydrite 2090 ft, pay 4840-4995 ft, flowed 20 bbls per hr natural, used 3000 gals acid flowed 171 bbls on 3rd hr, used 4000 gals acid and flowed 195½ bbls oil on 3rd hr and gas at rate of 9,680,000 ft daily. Ohio Oil Co.'s S. J. Averitt 1, c nw ne W. T. Ry. sec 228, blk G, dr 1510 ft. Phillips Pet. Co.'s A. G. Carter-Wasson 1, se se ne PSL sec 53, blk AX, elev 3558 ft, top anhydrite 2075 ft, dr 4590 ft. Phillips Pet. Co.-I. T. I. Oil Co.'s E. C. Brand 1, se se ne PSL sec 55, blk AX, elev 3585 ft, top anhydrite 2140 ft, top salt 2245 ft, top Yates 3035 ft, top first lime 3990 ft, saturation between 4881 and 4927 ft, used 5000 gals acid and swab 10 bbls oil per hr, testing.

HOCKLEY COUNTY—Frank A. Bates et al's S. S. & A. L. Lockett 1 (686-ac), 3790 ft fr s and 625 ft fr e lines PSL sec 5, blk 1, cem sur cas. Stanolind O&G Co.'s Alex Slaughter 1, c sw¼ labor 76, league 37, Zavalla C.S.L. sur, elev 3518 ft, top anhydrite 2220 ft, top Yates 2821 ft, top lime 4150 ft, rust and drl plugs 4770 ft.

TERRY COUNTY—H. B. Anthony-E. R. Rice & Illinois Oil Co.'s A. M. Brownfield 1, c nw¼ of E. L. & RR Co. sec 28, blk A-1, elev 3192 ft, top anhydrite 2236 ft, td 4536 ft, sd to rust. R. L. Foree et al's W. E. Pool 1, c ne¼ PSL sec 54, blk D-11, elev 3447 ft, top anhydrite 2418 ft, base salt 3103 ft, top Yates 3138 ft, first lime stringer 4165 ft, top big lime 4592 ft, td 4847 ft, sd to rust.

YOAKUM COUNTY—Bohago Oil Corp.-Bond Oil Corp.'s M. West 1, c se nw sec 606, blk D, J. H. Gibson sur, elev 3660 ft, top anhydrite 2230 ft, top Yates 3041 ft, top brown lime 4035 ft, showing good oil saturation, but poor porosity, coring 5230 ft. Denver Prod. & Ref. Co.'s J. A. Whittenburg Est. 1, c nw nw sec 831, blk D, elev 3616 ft, top anhydrite 2170 ft, top solid lime 4373 ft, logged oil saturation 4810-80 ft, td 5015 ft, run tub for test. Honolulu Oil Corp. et al's Ruth Bennett 1, nec sec 677, blk D, elev 3567 ft, top anhydrite 2385 ft, top Yates 3145 ft, top brown lime 4590 ft, used 9000 gals acid in 3 treatments in pay at 5279 ft, flowed 551 bbls initial. Moore Bros. Corp. et al's Geo. Cleveland-Ohio 1, c ne ne sec 706, blk D, elev 3624 ft, top anhydrite 2210 ft, top salt 2280 ft, top Yates 3050 ft, top brown lime 4060 ft, dr 4980 ft. Siosi Oil Corp. et al's Ruth Bennett 1, sw sw sw sec 631, blk D, rust, td 4860 ft. The Texas Co.'s W. F. Walker 1, c se se sec 794, blk D, elev 3656 ft, top anhydrite 2114 ft, top Yates 2990 ft, top solid lime 4450 ft, dr 4870 ft.

SOUTH TEXAS

LAREDO DISTRICT

DUVAL COUNTY—V. L. Blanchard's Rosa V. de Puig 1, sec 8, Sweden farm lots subd, Santos Flores Gr., drilling 2164 ft. Frank J. Gravis et al's Jane Schallert 1-A, sur 255, Palangana Salt Dome, reworking, td 2744 ft. John H. Hougen, Tr.'s W. H. Patton, Trustee 1, sur 148, sd 3005 ft. Humble O&G Co.'s Mary L. Davidson 1, sec 218, coring 2184 ft. Magnolia Pet. Co.'s Duval County Ranch Co. 1, sur 259, lcn. Penn-Palangana Oil Co. et al's C. K. Gravis 1, sec 254, coring 6090 ft; R. Schallert 1, sur 239, lcn. H. J. Porter's Clara Driscoll Sevier 1, blk 14, sec 754, sp in and sd. Standard Oil Co. of Kansas' V. L. Rossi 1-A, sec 19, Sweden subd, Santos Flores Gr., lcn. Southland Life Insurance Co. 1, blk 12, Ball Ranch subd, dr 610 ft. Standard Oil Co. of Texas' Gruy Est. 3, Margaret Gussett sur, dry and abnd after running electric formation tester, no shows, bottomed 2852 ft; Gruy Estate 4, sec 154, lcn. G. Stratton & Baltimore's W. F. Afflerbach 1, sur 342, top oil snd reported to be betwn 1095-1167 ft, dr plugs testing, closed well, td 1176 ft. Sun Oil Co.'s Gasper Rodriguez 2, J. C. King sur, dr 2595 ft. Texas Canadian Oil Corp.'s Mary J. Luby 1, Garza Irrigation Co. sur, still sd at 4570 ft. Tsesmelis and Reese's Juan Canales 2, blk 75 subd of Juan Canales Ranch, San Juan Gr, sd. Tide Water Associated Oil Co.'s J. R. Foster 2, J. Poitevent sur, drilling 1859 ft. Woodley Petroleum Co.'s F. Vaello Puig 1, San Andres Gr., made 24 hr gauge, made 96 bbls fluid through 15/64-in ch, 5 percent sw, tp 35 lbs, cp 610 lbs, through perforations 4795-4810 ft, with 20 shots.

JIM HOGG COUNTY—Henry M. Brown, Trustee's Sylvester Gutierrez et al 1, sec 22, drk only, clearing titles. French Oil Corp.'s M. Vela 1, sur 753, drilling 2050 ft, top Cole 1830 ft.

McMULLEN COUNTY — Alabama Mineral Corp.'s Margaret Gordon 1, A.B. & M. sur, sp. W. L. Hinds' Douglas W. Rhodes 1, H. Nadler sur, repairing rig, td 1488 ft. Howell Oil Co.'s Kate Martin 1, D. Eastepr sur No. 213, sd csg not set, td 3510 ft. Edwin M. Hones' Harry Ezzell 6, sec 60, Ezzell Ranch subd, C. O. Ragland sur, sd for repairs, td 2499 ft. J. T. Lanier's E. R. Hagist 1, sur 481, coring for Mirando snd Government Wells snd 2317-26 ft, show oil and sw, td 2485 ft. Rowan and Nichols' Douglas W. Rhodes 1, M. F. Lowe sur, sd at 2004 ft in sd/tr hole, td 2020 ft. V. G. Shimmell et al's E. R. Hagist 2, R. W. Mills sur, top Government Wells 2320 ft, top Mirando snd 2505 ft, sd at 2816 ft. E. P. Tinney's Jerry Rutherford 1, blk 17, Two Rivers Ranch subd, Live Oak School Land sur, dr 215 ft.

STARR COUNTY—Calderoni-James-Follette's Francisco Rodriguez 1, sh 56, por 80 J. of Camargo, drilling 1700 ft. John H. Clopton et al's Green 1, blk 5, sh 85, por 81 J. of Carmargo, prep squeeze job, 1112-16 ft, td 4620 ft; Dionicio Tijerina 5, blk 12, sd 14-C, por 80, dr plugs cored oil snd 1388-1400 ft, set 5-3/16-in csg at 1388 ft, td 1400 ft. Danrey Oil Co.'s Cayetano Ramos 2, sur 149, dry and abnd 2505 ft. G. E. Dodds, Trustee's Rosario Perez 1, por 83, J. of Carmargo, sd. Fech Oil Co.'s Frank Doyno 1-B, blk 2, tr 77-A, Camargo Juris, por 81, reinstated cleaning out for retest, td 1430 ft. Gilcrease Oil Co.'s C. M. DeCastillo 3, sh 7-B, por 77 J. of Carmargo, por 77, dr 420 ft. K. E. Merren's Starr County Cattle Co. 1-A, blk 34, of Jefferies and Lambeth subd, por 89, set 5½ in csg on btm, 5640 ft, woc. Henry Mode et al's Starr County Cattle Co. 1, blk 18, Jefferies and Lambeth subd, por 88, 2nd drill stem test 2523-38 ft, rec 6 joints mud cut with oil 2 gals, free oil ran 3rd test, no results, td 2526 ft. The Texas Co.'s A. V. Guerra 6-A, sh 305-D, por 67, J. of Mier, made 5 bbls of oil and gauged 300,000 cu ft of gas daily on 3/16 in ch, tp 400 lbs, cp 560 lbs, closed in cp, operators have decided to shoot snd with 3000 quarts of nitroglycerine if this does not increase prod well will be acidized, td 3653 ft. Transwestern Oil Corp.'s T. B. Slick School 1, sur 266, drilling 5000 ft.

WEBB COUNTY—R. S. Bolling's Ft. Worth Nat'l Bank, sur 466, lcn. French Oil Corp.'s J. M. Garcia Est. 3, sur 1121, ru. Eugene Garner Jr.'s R. Saldivar 3, sur 657, lcn. Gypsy Oil Co.'s (J. R. B. Moore) Maria G. Martin 2, sur 458, swabbing 1925 ft. J. W. Magee's E. Garcia 1, Henry James subd, Garcia tract, J. V. Borrego Gr, dr 1466 ft. Howard Nessley's A. M. Bruni Est. 3, sur 449, lcn. Oil Well Drilling Co.'s D. G. Garcia 1, blk 9, sur 786, lcn. E. J. Pearl et al's De la Garza Est. 1, sur 262, C. C. S. D. and R. G. N. G sur, dr 1704 ft. Randon Oil Co.'s Joe C. Palmer 1, sur 474, ru and sd to clear titles. Simon-Grossman and Katz's R. Saldivar 1, blk 11, sur 657, sd no snd, td 1015 ft.

ZAPATA COUNTY—Allison & Abrams' S. Vela 1, sur 259, abnd 1120 ft. W. C. Bob's J. M. Martinez 2, blk 22, W. R. Duke subd, Charco Redondo Gr, resumed drilling 725 ft. Fansler-Moore-Murray's Gopher Trust Estate 1, snd 1200-05 ft, cap 1206-08½ ft, snd 1208½-18½ ft, sul wtr snd 1218½-39 ft sul wtr abnd, td 1349 ft; Gopher Trust Estate 2, blk 12 sur 6, Fulerton J. V. Borrego Gr, ru. O. W. Killam's A. M. Bruni Est. 2, blk 83, Killam subd, E. V. Borrego Gr, skid on for 1400 ft, test. Ray L. Martin's S. Vela 1, blk 44, sh 2, El Grullo Gr, sd 1257 ft. Eugene Mays et al's Adela G. de Flores 1, blk 198, Dorothy subd, dr 118 ft.

SAN ANTONIO DISTRICT

BASTROP COUNTY—Conservative Oil Co.'s Wentland-Bowen 1, Freeman Wilkinson sur, 2 mi nw Red Rock, sd 1400 ft. C. R. Franklin's Thaxton & Yarrington 1, J. M. Bangs sur, sd 550 ft. Hantho-Nelson, Inc.'s K. M. Litton 1, A. Litton sur, comp fsh job 2112 ft, prep to test. Marts & Beavans' Gillum 1, T. Garretson sur, dr 2335 ft. H. D. Noonan's J. D. Fitzwilliams 1, M. Rousseau sur, lcn. R. Olsen Oil Co.'s M. Murchison 1, A Litton sur, sd for rig repairs. Texas Northern Oil Corp.'s John Barton et al 1, J. Rogers sur, dr 2770 ft.

BEXAR COUNTY — Edna May Oil Co.'s Mrs. C. N. Cassin 1, Fernando Rodriguez sur, td 1349 ft, pb 1255 ft, acidized with 3000 gals, swabbed 65 bbls per day, now on pump and testing.

CALDWELL COUNTY—Fred J. Adams and Lyles' Mrs. L. E. Shinn 1, Ambrose Tinney sur, dr 2800 ft. B. C. Armstrong et al's Wilson Bell 1, Solomon Seal sur, coring 2430 ft, apparently at top Austin chalk, oil stains. R. T. Belcher's Mrs. G. Moody 1, Solomon Seal sur, dr 1465 ft. Lanning & Coffield's W. R. Trammell 1, Guadalupe college sur, skid on. Richardson Pet. Co.'s J. M. Trammell 1, E. Berry sur, dry and abnd 2222 ft. L. H. Wilson's P. K. Wright 1, J Roberts sur, td 1900 ft, dry and abnd in chalk (probably base) moving off.

DIMMITT COUNTY—Paul C. Teas & Maryland Oil Corp.'s S. E. McKnight 1, sec 23, rigging up. Wilcox O&G Co.'s Light Ranch (Luminar) 2, sec 29, dr at 3810 ft.

EDWARDS COUNTY—Amon G. Carter et al's Frank J. Sweeten Ranch 1, GC&SF sur, dr 3520 ft.

FRIO COUNTY—H. A. Pagenkopf & L. C. Jamieson's Houston estate 1, Juan Figuerroa sur, preparing to move on rig.

GUADALUPE COUNTY — Mason Altgelt's Herman Schubert 1, Esnaurizar sur, bailed little oil from chalk, dr ahead at 820 ft. Diamond Half Oil Co.'s E. Bibbs et al, Joel D. Robinson sur, dr at 1100 ft. Jas. H. Eddy's D. F. Smith Est. 1, W. H. Hunter sur, dr 2112 ft. Felmont Oil Corp.'s W. O. K. Anderson 1, Green DeWitt sur, lcn. Moon Oil & Gas Co.'s Gus Penshorn 1, V. Duron sur, sd 714 ft, trying to finance to carry to Austin chalk.

MAVERICK COUNTY — Wellington Oil Co.'s Chittim Ranch 1, dr 1550 ft.

MEDINA COUNTY — Gates-Hull-Meed's Emil Kreisle 1, sd 340 ft. Kelfar Oil Co.'s Flora H. Briscoe 1, Aloys Schmidt sur 8, lcn. C. J. Webster O&G Co.'s Wm. H. Weimers 1, Joseph Haley sur, still waiting on water.

WILSON COUNTY — Pat Higgin's Mary Dickey 1, M. Rodriguez sur, spudding. R. C. Stanley's E. M. Hierholzer 2, R. Salina sur, sd 1031½ ft.

CORPUS CHRISTI DISTRICT

ARANSAS COUNTY—Barnsdall Oil Co.'s Kate Edwards 1-A, Wm. Lewis sur, td 9785 ft, cutting and pulling, drill stem stuck one joint off bottom.

BROOKS COUNTY—Mills Bennett Prod. Corp.'s W. W. Jones 1, Guadalupe Sanchez sur, drilling 3757 ft. Standard Oil Co. of Texas' Mestena Oil & Gas Co. 1, Salinas sur, td 6786 ft, perforations 2380-95 ft, 30 shots, testing. Standard Oil Co. of Texas' Mestina O&G Co. 8, La Mestina y Gonzalena gr, td 2559 ft, recovered 30 ft of mud and no pressure on drill stem test, 2549-59 ft, dr ahead.

GOLIAD COUNTY—Goliad Oil Co.'s S. E. Cole 1-A, Goliad Town tract, still sd 5687 ft.

HIDALGO COUNTY—Felmont Oil Corp. et al's Mayer & Weill 1, Tr. 1, por 47, drilling 3575 ft. Y & B Oil Co.'s Waite Brothers 1, Los Ejidos gr, coring 2410 ft.

JACKSON COUNTY—Davey & Co., W. L.

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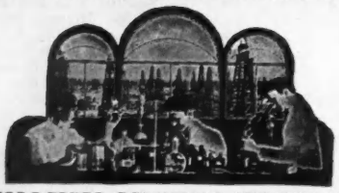

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Hodges I&GN sur, lcn. George J. Greer et al's J. R. Davis 1, D. H. Hoffman sur, sd 6991, drill stem stuck. Texas Company's C. E. Niebuhr Morris & Cummins sur, drilling 2825 ft.

JIM WELLS COUNTY—Roy Gaines et al's W. D. Wade 1, Casa Blanca sur, drilling 3900 ft.

KARNES COUNTY — Dirks Brothers' E. Ruhmann 1, James Johnson sur, td 3624 ft, made 156 barrels in 12 hrs 3/16 inch choke, tubing pressure 660 pounds and casing pressure 1240 pounds, sand 3595-3614 ft, still flowing steadily same pace. Dirks Brothers' E. Ruhmann 2, James Johnson sur, drilling 2780 ft.

LIVE OAK COUNTY—W. M. Brown's W. Moozygamba 1, George West subd, spudded and set 40 ft of 10 inch casing. Charles Hannah's C. H. Wedding 1, Brigida Haughy sur No. 1, sd 610 ft. C. E. Jacobs et al's J. W. Nichols Ranch 1, Simeon Ryan sur, td 470 ft, coring, top Jackson 425 ft. W. C. McBride, Inc.'s A. Sanger 1, GC&SG sur, td 4023 ft, dry and abnd in sand all way from Pettus, few minor shows. Ranco Oil Corp.'s Fee 1, J. Pointevent sur, rigging up.

NUECES COUNTY—Camp Prod. Corp.'s C. Phillip Wardner 1-A, Paso Ancho Abajo and Paso Ancho Ariba surs, drilling 3636 ft. Fain Gillock et al's Robert Poenisch 2, Flour Bluff & Encinal Garden tr, sd 7010 ft, may abandon. Greta Oil Corp.'s Frank Bliss 2, J. W. Stevens sur, rigging up. Seaboard Oil Corp. of Delaware's James P. Luby 1, Palo Alto gr, rigging up. Southern Minerals Corp.'s Lucy J. Rivers 1, Palo Alto gr, td 6015 ft, dropped junk in sdtr hole at 5862 ft, plug back and now drilling at 5760 in second sdtr hole. Southern Minerals Corp.'s Hal G. Yakey 1, King Ranch subd and Agua Dulce gr, derrick. United Prod. Corp.'s T. S. Schroeder 1, Andres Fernandez de la Fuentes sur, drilling around 3655 ft.

REFUGIO COUNTY—Conroe Drilling Co.'s F. E. Kloesel 1, Bonnie View Ranch subd, dry and abnd at 6517 ft. Wynne Drilling Co.'s J. A. Lambert 1, James Power & James Hewitson sur, drilling about 3800 ft. United Prod. Co.'s J. J. O'Brien 12, Refugio town tr, td 9225 ft, perforations 7103-14 ft, flowed 131 barrels per day, 52 gravity oil, ¼-inch choke, tubing pressure 2500 lbs, casing pressure 2550 lbs, opens new 7100 ft sand.

SAN PATRICIO COUNTY — Buckingham Oil Co.'s Jean Davis 1-C, Peterson subd, testing 7150 ft. Plymouth Oil Co.'s J. F. Odem 1-A, Archibald Herron sur, drilling hard limey shale at 6100 ft. F. P. Schwab's H. A. Smith 1, Juan Hart & Sons gr, waiting on rig. Wellington Oil Co.'s James F. Welder Julian De la Garza gr, drilling 6950 ft. Gulf Oil Corp.'s Mahon & Buehler 1, J. Poitevent sur, moving in material.

WILLACY COUNTY—Magnolia Pet. Co.'s F. Armendiaz 1, San Juan de Carricitos gr, lcn. Shell Pet. Corp. et al's Yturria Cattle Co. 2. San Juan de Carricitos gr, dr 2435 ft, will set 13¾ csg.

TEXAS GULF COAST

BRAZORIA COUNTY—Jack Frazier's Temple Lumber Co. 1, e of Bonney, H. & T. B. No. 25, rigging up. Same operator's S. W. Russell 1, ne of Bonney, J. M. Allen sur, lcn. Humble's Munson 1, e of East Columbia, S. Carter sur, lcn. Ohio Oil Co.'s Kemper 1, Chocolate Bayou area, H. & T. B. No. 33, dr hard shale and streaks sand 7090 ft. Texas Gulf Producing Co.'s Adams 1, Chocolate Bayou area, H. & T. B. No. 40, dr shale and shells 4150 ft. Pure's Slade 1, Peach Point prospect, S. F. Austin sur, cutting drill stem 8393 ft.

COLORADO COUNTY — Coyle-Concord's Mary 2, I & G. N. No. 41, dr hard shale 3270 ft.

FORT BEND COUNTY—Research Oil Co.'s Moore 1, ne of Orchard, S. Kennedy sur, waiting on rig, td 5050 ft.

HARRIS COUNTY—Geo. Anderson's Fisher 1, Cedar Bayou area, John James sur, abn 6800 ft. Superior's Butler 1, Bammel area, J. Ehrhardt sur, dr shale 10,519 ft. West Prod. Co.'s Underwood 1, nw of LaPorte, N. Clopper sur, dr shale 7920 ft.

LIBERTY COUNTY—J. G. Mayo et al's Gibbs Bros. 1, ne of Davis Hill, J. D. Martinez sur, dr shale 5080 ft. O. C. Garvey's J. H. Weaver 1, J. Devers Abstract 170, nw of Cleveland, moving in rig.

MATAGORDA COUNTY — Continental's Hawkins 2, Sheppards Mott area, D. McCarthy sur, milling on iron 7216 ft. United North and South Dev. Co.'s Lambert 1, sw of Buckeye, CB&M Cotton sur, dr shale 8509 ft, may make test.

WALKER COUNTY—C. W. Markel et al's Nathan Hall 1, S. Montgomery sur, 12 mi w of Huntsville, new lcn.

WHARTON COUNTY — Jack Hutchings' Orsak 1, se of Wharton, J. Tumblinson sur, abn 3080 ft.

WYOMING

ALBANY COUNTY—Ohio Oil Co.'s D. J. Griffin 1, se sw 2-21n-77w, mim.

BIG HORN COUNTY—Big Horn Petroleum Trust Co., Parker 1, csw sw 23-49n-89w, resuming at 1425 ft. Wood-Callahan Oil Co., Evans-Government 1, ne ne nw 12-49n-91w, woc around 8⅝ in csg on top of Madison lime at 2150 ft.

CARBON COUNTY—Ohio Oil Co., Wyoming Oil & Gas Co. 1, se sw 29-27n-89w, wo repair job on the old P&R hole about 100 ft from the new well. Old hole was improperly plugged and must be re-plugged.

CAMPBELL COUNTY—G. J. Sherin et al's Rhodes 1, ne se sw 24-49n-74w, dr 475 ft, preparing to lower 15½ in csg for formation so at 500 ft.

FREMONT COUNTY—Stanolind Oil & Gas Co.'s Johnson 1, cse se 3-33n-96w, lcn.

NATRONA COUNTY—General Petroleum Corporation's Government 1, cnw nw se 21-35n-77w, dr water well and setting up boilers.

NIOBRARA COUNTY—W. A. Maupin et al (formerly carried as Diehl Bros.) Berggren 1, nw 23-35n-63w, ru.

PLATTE COUNTY—Dividend Oil & Refiners, Inc., 1, nw nw 17-24n-66w, dr 2414 ft.

SWEETWATER COUNTY—Mountain Fuel Supply Co.'s W. L. Williams 1, s ne 5-12n-95w, mim from J. C. Donnell 1, completed in the Powder Wash field, Moffat County, Colo.

WESTON COUNTY—John Brorby's 1, se sw 12-47n-64w, dr 450 ft. Mush Creek Oil Co.'s Carmine 1, cse sw 31-44n-62w, lcn.

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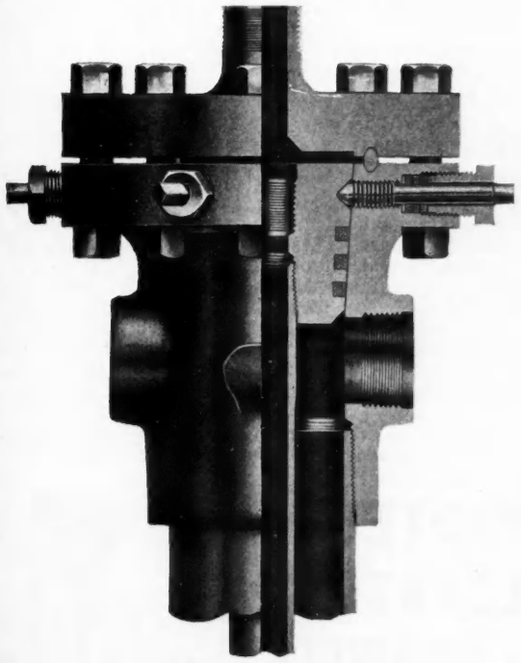
Beaumont Iron Works Company, Beaumont, Texas, has placed on the market a new tubing head designed for use with blowout preventer equipment to permit completion of a well under pressure without mudding off the producing sands. Designated as type "HX-30-01," this new "Dreadnaught" head is recommended for use where working pressures do not exceed 1500 pounds.

Tubing is suspended from a tapered hanger which seats in the bowl of the body and packs off on three rings of hydraulic packing. Six nickel steel set screws, each provided with a



"Dreadnaught" Tubing Head

stuffing box, hold the hanger in place. Christmas tree connections are made up on top of a bonnet, which bolts down on top of the body on a standard A.P.I. metal seal ring. Two hold-down ears are cast integral with the body to permit the operator to tie the head assembly together for greater safety.

Should the operator desire to set packer at the same time tubing is run, the packer type hanger used in the type "HX-30" tubing head may be substituted for the regular hanger. Or, should it become necessary to set packer after completion of the well, it can be done by simply removing Christmas tree fittings and bonnet, reinstalling blowout preventer equipment, and substituting the packer type hanger referred to above for the regular type hanger. The set screws provided hold the hanger securely in the body against pressure while blowout preventer equipment is removed or installed. Blowout preventer equipment flanges directly to the body of the head.

FIRE EXTINGUISHER
Pyrene Manufacturing Company

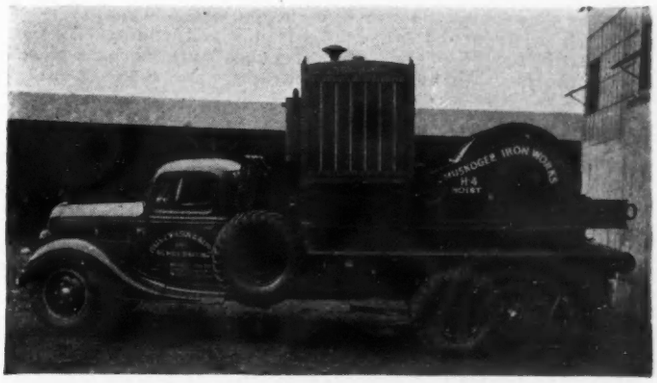
Pyrene Manufacturing Company, Newark, New Jersey, has announced heavy vehicle type fire extinguishers with special "shock absorber" construction to withstand excessive vibration and fitted with specially built sturdy steel brackets in two styles for truck and bus equipment. One bracket is for mounting the extinguisher on the steering post and the other for any position on the dash or inside of cab.

In addition to the conventional retaining cup at bottom and spring clips at top, these brackets hold the extinguisher firmly and securely by a metal strap extending around the extinguisher with quick-opening spring buckle which readily and instantly releases in an emergency.

H-4 PORTABLE HOIST
Muskogee Iron Works

Muskogee Iron Works, Muskogee, Oklahoma, announces development of a large well servicing and drilling unit designated as Model H-4 Hoist. The hoist is equipped with a Hercules HXE engine, Brown-Lipe 7440 transmission and high speed reverse. Spudding attachment, A frame, auxiliary drum or cathead shaft and rotary drive sprocket can be added to convert the well servicing hoist into a cable tool or rotary unit.

This unit has, theoretically, a line capacity of 9000 feet of 7/8-inch line and 17,000 feet of 5/8-inch line. The single line



Muskogee Iron Works new hoist

speeds and single line pulls range from 27,615 pounds at 132 feet per minute in low to 5717 pounds at 641 feet per minute in high for an engine speed of 1600 R.P.M.

The hoist is equipped with a gas regulator, large gas tank,

INFERNO
High Efficiency
OIL BURNER

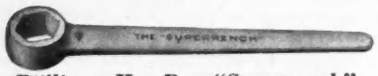
It mixes air and oil (of any gravity) to produce perfectly vaporized fuel. Saves up to one-third or more on fuel. Gives intense heat without smoke. Will not clog. Prolongs the life of your boiler. Can be used with INFERNO Firing Control to maintain even steam pressure automatically. One of the first INFERNO products on the market; tried and proven.

The INFERNO Co.
"MAKERS OF BETTER STEAM EQUIPMENT"
P. O. BOX 1138 SHREVEPORT, LA.
Have You Taken the Peace Pledge?
Write for Information.

oil bath gas scrubber, gasoline tank for easy starting and many other desirable Muskogee features.

WRENCH
J. H. Williams & Co.

J. H. Williams & Co., New York City, has announced the Hex-Box "Superrench." Designed for severe service, these new heavy pattern wrenches provide extra strength and full bearing, the heads being approximately the same thick-



Williams Hex-Box "Superrench"

ness as the nuts they serve. Their comparatively thin head walls are particularly efficient in close quarters. Openings range from 1¼ to 3⅛ inches. They are drop-forged in two lines —carbon steel wrenches and chrome-molybdenum "Superrenches."

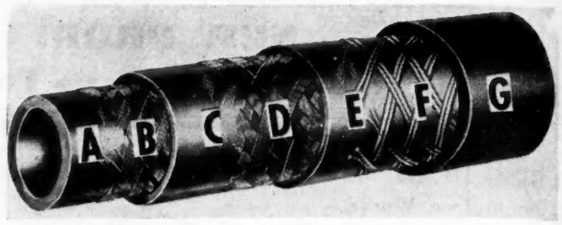
Carbon wrenches are finished in black enamel (baked-on) with bright heads. "Superrenches" are chrome-plated with the faces of heads buffed bright.

BURST-PROOF STEAM HOSE
The B. F. Goodrich Company

The B. F. Goodrich Company, Akron, Ohio, announces "Burst-Proof" steam hose. It is claimed that when this hose fails it will leak but nothing can cause it to burst except an external blow severe enough to cut the wire reinforcement. It is recommended by the manufacturer for 200 pounds working pressure in all sizes, with a safety factor of 15 to 1 in larger diameters and up to 35 to 1 in small diameters.

Insulating layers of "Burst-Proof" hose are made of a special heat-resisting rubber compound which retains its liveliness and sealing properties to a remarkable degree, even when subjected to high pressure steam.

The new hose is designed with a reinforcement of high tensile steel wire. Wire is applied in a braided form with openings large enough to permit the rubber to rivet itself. The form of wire tape used consists of seven or eight strands of



Goodrich "Burst-Proof" Hose

wire laid side by side. This construction utilizes the maximum strength of the wire so that no additional reinforcement is needed beyond a single ply of wire tape in small sizes and two plies in larger sizes.

Outside of the wire braid and underneath the cover is embedded an additional braid of asbestos cord. Being a slow conductor of heat, this asbestos layer protects the cover from burning. Completing the construction is a heavy, long-wearing black rubber cover which is heavily compounded with a special anti-oxidant to give it age-resisting qualities.

The new hose is available in sizes ranging from ⅜-inch to 2½-inch.

FLOW CONTROL VALVES
Manning, Maxwell & Moore, Inc.

Manning, Maxwell & Moore, Incorporated, Bridgeport, Connecticut, has announced a redesigned line of Hancock Bronze "Flocontrol" Valves. These novel valves are a combination flow instrument and shutoff valve.

The new line of valves retains the basic proportional flow or straight-line flow characteristic of the original valve, possessing superhard stainless steel valve seats and discs of 500 Brinell hardness. Also it is claimed that these new hard valve seats and discs will smash nails, pipe turnings, welding chips and boiler scale without leaving a trace on either seat or disc.

The new valves have a new body of the union bonnet type, instead of the inside screw bonnet originally used.

A Working Barrel that

STANDS UP!

Greater strength, increased reliability, because it's made of *Seamless Steel!* Made to A.P.I. specifications from highly specialized, cold-drawn tubing. In all standard sizes at your oil-field distributor. The Charles N. Hough Mfg. Company, Franklin, Pa., and Tulsa, Oklahoma.

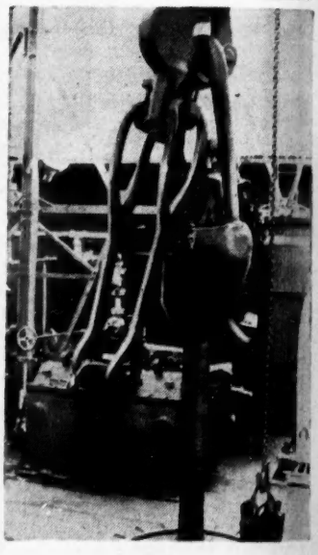
HOUGH

Seamless Steel

WORKING BARRELS

PROTECT ELEVATORS *and* SWIVELS

The leading manufacturers of swivels can now supply their product equipped with Patterson-Ballagh Swivel Bumpers. As a further evidence of the demand for such a device, leading manufacturers of swivels now offer their new models equipped with this device. This essential device prevents wear of elevator links, also flange on swivel. It keeps the links centered on the hook to prevent undue strain. Made in single and double types. 16″ and 32″ lengths, with 5″ outside diameter. Now in use on hundreds of wells. Shipped, ready to install on all standard makes of swivels.



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Mid-Continent Office: 1507 Maury St., Houston. New York Office 39 Courtlandt St.

PATTERSON-BALLAGH SWIVEL BAIL PROTECTORS

This Week with the Industry's EQUIPMENT SUPPLIERS

Merger of Spang, Chalfant and National Supply Underway

For some years past control of the common stock of Spang, Chalfant & Company, Incorporated, has been owned by The National Supply Company of Delaware and the two companies have been operated independently one from the other. In the interval, much new legislation has been enacted which will result in the two companies paying an undue share of taxes, which in time will materially increase costs, it is said.

To adequately meet the situation, the directors of the two companies have recommended to their stockholders that they be consolidated. In order that there will be no change in handling the general business, trade relationships or credit policies of Spang Chalfant after this consolidation, a new Spang Chalfant company will be chartered to operate as an independent unit. Under this program there will be no change in the officers or personnel of the manufacturing or sales departments.

The contemplated change is one of corporate set-up, and is not a change in operations or management.

McPhee Joins Lane-Wells As Sales Engineer

James W. McPhee recently became associated with the Alexander Anderson division of Lane-Wells Company as sales engineer.

McPhee has been connected with the oil industry and supply business for nearly 15 years, starting as an electrician for Shell at Signal Hill. In 1923 he was transferred to the engineering department. He majored in development work on water entry problems.

In 1928 McPhee left Shell to organize the Snap Valor Corporation. From 1931 to 1936 he acted as factory representative for U. S. Electrical Manufacturing Company, specializing in the application of electrical motors to oil production. In 1936 McPhee went with Midwest Piping & Supply Company, where he remained until he resigned to accept his present position.

JAMES W. McPHEE
Joins Alexander Anderson Division of Lane - Wells

Westinghouse Creates New Products Division

Responsibility for the development of lines of activity which are either new, or which have not been previously undertaken by the company, has been centralized by Westinghouse Electric & Manufacturing Company with the formation of a new products division. Functioning the same as the other operating units of the company, this division will include separate engineering, manufacturing and sales departments.

In its new capacity the division will concentrate its facilities for the development and broadening the field of applications of products which have not reached the state of commercial apparatus. Then, after the field for each new product has been determined and the product has passed through the pilot plant stage, it will be absorbed by one of the regular company divisions. It will also be the responsibility of the new division to train a staff that will be adequate for the further promotion of the product.

H. M. Wilcox is manager of the new products division, with H. W. Tenney as engineering manager and George F. Begoon as sales manager.

Crane Company Transfers Jones To Oil Sales

T. S. Jones, formerly of the Tulsa branch of Crane Company, Chicago, and an employe of the company for many years, has been transferred to the oil sales department of the company as a field representative, covering Kansas, Oklahoma and the Panhandle of Texas.

Worthington Plants Working at Capacity

Unfilled orders of Worthington Pump and Machinery Corporation on July 1 were 81 percent greater than on the same date last year, and were at the highest level in 17 years, H. C. Beaver, president, announced.

As a result, he said, "The principal plants of the corporation at Harrison and Newark, New Jersey, and at Buffalo, New York, are operating at a high percentage of capacity, and the corporation's Holyoke, Massachusetts, plant, which was recently reopened, is rapidly expanding production. Many lines of industry served by the company, covering railroads, public utilities, shipbuilding, automobiles, steel, chemical process and paper industries, oil refineries, gas and oil pipe lines, and a wide variety of miscellaneous enterprises, contributed to the increase in orders."

E. S. Crosby New President of Johns-Manville International

Johns-Manville Corporation announces the appointment of E. S. Crosby as president of the Johns-Manville International Corporation, a subsidiary. Crosby joined Johns-Manville in 1928, when it absorbed Celite Company, of which he was vice president and a director. His first position with "J-M" was as general manager of the engineering department. In 1929, when Johns-Manville International Corporation was formed, he became vice president and general manager. The presidency of the international corporation has been held by L. H. Brown, president of Johns-Manville Corporation.

Lincoln Opens Sales Office at Dayton

Lincoln Electric Company, Cleveland, Ohio, has announced the opening of a new sales engineering office at Dayton, Ohio. The new office, in charge of R. P. Sharer, is located at 1508 Watervliet Avenue.

Sharer is a former resident of Dayton and attended Moraine Park High School. He also attended Case School of Applied Science, Cleveland, Ohio. Prior to his Lincoln appointment, Sharer worked for Cleveland department of water and the Firestone Tire & Rubber Company.

Waldo Moore Appointed Cavins Advertising Manager

Cavins Company has announced the appointment of G. Waldo Moore to the position of manager of California rental service agencies and national ad-

G. WALDO MOORE
California Executive for Cavins Company

vertising. Prior to assuming his new duties, Moore had represented the company in a sales capacity in the Los Angeles basin. Before joining Cavins Company some four years ago, he was engaged in oil tool sales in the Rocky Mountain and Canadian fields.

Marsh Will Head New Armco District Office

Marvin Marsh, special "Armco" sales representative in the Kansas City territory since 1935, has been named manager of the company's newly created district office at 7100 Roberts Street, Kansas City, according to W. W. Sebald, vice president in charge of commercial activities of The American Rolling Mill Company, Middletown, Ohio. Marsh will be assisted by a competent staff.

Lamb, Representative of Axelson, Is Injured

Louie F. Lamb, factory representative for Axelson Manufacturing Company, was critically injured in an automobile accident August 3 near Randlett, Oklahoma. Lamb was on his way from Oklahoma City to Wichita Falls, Texas, when the accident occurred. He is now in Bethania Hospital at Wichita Falls. His condition is improving and he will probably be out of the hospital the latter part of August.

Wilson Appointed Foote Bros. District Representative

Foote Bros. Gear and Machine Corporation, Chicago, recently appointed Eugene D. Wilson, 703 Columbian Mutual Tower, Memphis, Tennessee, as district representative for territory comprising Tennessee west of the Tennessee river, northern half of Mississippi, and all of Arkansas, except the southwestern corner.

Chicago Pneumatic Moves Buffalo Service Branch

Chicago Pneumatic Tool Company has announced the moving of its Buffalo sales and service branch to 128 West Chippewa Street, Buffalo, New York. This is a direct factory service branch in charge of trained company personnel.

Ensign Carburetor Co. Opens Branch at Dallas

Gilbert Woodill, sales manager, Ensign Carburetor Company, Ltd., Huntington Park, California, announces completion of arrangements for the opening of a branch at Dallas, Texas; where the company will maintain complete stocks of all sizes of Ensign equipment for distribution to sales and service representatives, as well as to users in the various Texas, Mid-Continent and Gulf Coast oil fields. He will leave shortly for Dallas to personally supervise the opening of this branch, which he plans to have ready for business early in August.

GILBERT WOODILL

The opening of the Dallas branch of the Ensign Carburetor Company, is the result of a personal survey of the Texas, Mid-Continent and Gulf Coast territory last May by Woodill and his subsequent recommendation to the officials of the company. In many respects this branch will be similar to the one opened by the Ensign Company in Chicago last year. Ensign carburetors and fuel regulating equipment will be shipped from the factory to its newest branch in semi-assembled condition.

L. C. Arter, who has had wide experience in the Texas and Gulf Coast territory, as well as eastern and mid-western states, will be in charge of the Dallas branch. He has been with the Ensign Carburetor Company for 15 years and is thoroughly familiar with all types of Ensign equipment, and particularly carburetors and fuel regulating devices for industrial engines and tractors.

An informal picture snapped on a Mid-Continent lease at Lucien, Oklahoma. Reading from left to right are: R. H. Speck, store manager, Frick-Reid Supply Corporation, Perry, Oklahoma; E. L. Clark, Walworth Company; Lloyd Snyder, division superintendent, Mid-Continent Petroleum Corporation, Wichita, Kansas.

BULLETINS

Motor Book

The Louis Allis Company, Milwaukee, Wisconsin, has issued a very complete 60-page book describing the construction, features, advantages and applications of practically every commercial type electric motor.

This book also includes valuable engineering data on various types of special motor applications and construction.

It includes a detailed analysis of the characteristics of squirrel-cage motors, motors for centrifugals, etc.

A copy of this completely illustrated beautiful, colored book will be sent at no charge to anyone directly interested in the purchase, operation or maintenance of electric motors if requested on company stationery.

Portable Drinking Fountain

Mine Safety Appliances Company, Braddock, Thomas and Meade Streets, Pittsburgh, Pa., announces a bulletin describing a new portable drinking fountain (bubble type) for construction crews and oil field use.

Chain Hoist

Yale & Towne Manufacturing Company, Philadelphia, has issued a new catalog covering chain hoists, trolleys and similar equipment. It contains complete information regarding specifications, dimensions, lubrication and maintenance on this class of equipment.

Tire Handbook

The B. F. Goodrich Company, Akron, Ohio, has just published the 1937 edition of its "Operators Handbook."

It contains 66 pages, filled with factual information and data tables on tires in commercial services.

Complete description of all the company's tire and tube products for trucks, buses, tractors or farm implements with specification tables giving detailed data are included. The Goodrich Calculator, to tell actual truck tire costs is described and instructions given for its use.

Eight pages are given to industrial tires, both pneumatic and solid, and new products of the company in this field together with data on their use are described.

Much new information is given in the chapter on "Load Ratings and Inflation Pressures," in which the maximum load which can be carried by any tire depending upon operating conditions is discussed. Two pages treat easy methods of load analysis and a description of the importance of such analysis for efficient and economical operation.

Pumps

Wilson-Snyder Manufacturing Company, Pittsburgh, has issued three new bulletins covering its pumps. Bulletin No. W-159 is on Super size 15 x 7¾ x 20-inch steam slush pump. Bulletin No. W-104-B covers the Wilson-Snyder No. 16 size 12 x 6 x 16-inch steam slush pump. Both bulletins contain specifications and parts lists. Bulletin No. W-72-J covers the 10 x 4½ x 10-inch boiler-feed pump which also can be furnished in size 7 x 4½ x 10-inch. This pump is extra rugged so that it can be used for a hydraulic blowout preventer and for gathering service. It has a 1000-pound working pressure fluid end; 2500 pounds hydrostatic test, 300 pounds working pressure steam end and balanced piston valves. In addition to specifications this bulletin also carries a parts list.

Electric Welding

Latest information on the construction of pipe lines by electric welding for transportation of oil, gas and water is contained in a new bulletin just published by The Lincoln Electric Company, Cleveland, Ohio. The new bulletin, entitled "Building Better Pipe Lines Faster at Less Cost by Shielded-Arc Welding," contains 14 pages 8½x11 inches and is illustrated with photographs of pipe lines under construction by electric welding. A brief foreword reviews the progress of electric welding in pipe line construction from 1928 when the first major pipe line was electric welded up to the present time.

Valves

"Edward Better Valves" is the title of a new catalog recently published by Edward Valve & Manufacturing Company, East Chicago, Illinois. It is a condensed catalog of this company's forged steel valves and should be of particular interest to the production man. Maintenance Engineering Company, 3611 Clinton Drive, Houston, has a supply for Gulf Coast distribution.

Squeaks from the Bull Wheel

Two Too Many

"It's easy to write a play. First act, boy meets girl; second act, they hold hands; third act, they kiss."

"That's how I got arrested."

"What do you mean?"

"I wrote a five-act play."

Deuces Wild?

"How did you get that black eye?"

"I was playing poker with a girl who lisps."

"Yes, but what has that got to do with it?"

"She said the thigh was the limit."

Experienced

She—Wish me good luck. Tonight I pose as Innocence.

He—That always has been just a pose with you.

Specialist

She—Yes, I'm a model and the artist I pose for does painting, etching and sculpturing.

He—But of course he does some one particular thing better than anything else?

She—Oh, yes, but nevertheless he's pretty good at painting, etching and sculpturing.

How Was He to Know?

John—Darling, do you feel that you can trust me out of your sight?

Mary (wistfully)—Oh, yes. I might just as well leave the lights on.

Well?

John, aged five, had been receiving a lesson on politeness.

"Remember," said his father, "when you are in a street car and a lady comes in, you must jump up an say, 'Take my seat'."

A few days afterward they were in a crowded street car, and Peter sat on his father's knee. As a pretty young lady approached, up jumped Peter.

"Take my seat!" he said .

"Did you say your husband was fond of those clinging gowns, Ann?"

"Yes. He likes one to cling to me for about two years."

Bar the Window

The gentleman called the desk clerk from his hotel room.

"Clerk," he complained, "there's a light burning in a room across the courtyard and it's dangerous to my chances of living to a ripe old age."

"I don't quite understand, sir," declared the clerk. "Why should a light in a room across the courtyard be dangerous to you?"

"Well, a strip-tease artist lives in that room and she practices her routine in front of the window every night."

"And that endangers your chances of living to a ripe old age?"

"Positively," answered the guest. "I'm nearsighted, and one of these days I'm going to fall out of the window."

Honest Confession

A firm advertising for a salesman received a repl·· from a man who said he was the greatest salesman in the world. They engaged him.

After he had been away a week they were surprised to get a telegram saying:

"I am not the world's greatest salesman. The greatest salesman was the man who loaded you up with these goods."

Fair Fare

A Scot was engaged in an argument with a conductor as to whether the fare was 25 or 30 cents. Finally the disgusted conductor picked up the Scotsman's suitcase and tossed it off the train, just as they passed over a bridge. It landed with a splash.

"Mon," screamed Sandy, "isn't it enough to try and overcharge me, but now you try to drown my little boy."

Fifty-Fifty

Two Negroes who hadn't seen each other for several months met one day.

"How you an' de wife gittin' 'long, Hinry?" asked one.

"Ain't you heered?" came from the other. "Me an' her done got divorced."

"Um! Well, dat's bad. But tell me, Hinry, what did you do with dat house you an' her owned?"

"Oh, we divided it up."

"Um! Well, dat's nice. How did you divide it?"

"Fifty-fifty! She taken de inside an' I taken de outside."—Enquirer.

Service Record

He gazed proudly at the engagement ring he had placed on her finger.

"Did your friends admire it?" he inquired, tenderly.

"More than that," she replied. "Two of them recognized it."

Wahoo

A buck Indian had just ordered a ham sandwich at a drug counter and was peering between the slices of bread when he said to the waiter—"Ugh, you slice 'em ham?"

"Yes, I sliced the ham."

"Ugh," grunted the Indian. "You darn near miss 'em."

Their Choice

"If your mother gave you a large apple and a small one and told you to divide with your brother, which apple would you give him?"

Johnny: "D'ye mean my big brother or my little one?"

Saving

"This is your fourth daughter to get married, isn't it?"

MacTavish: "Aye, and our confetti's gettin' awful gritty."

Just Cleaned Out WITH A MILLER

MEANS EXTRA $$$ IN Your POCKET

Because the MILLER Sand Pump cleans out sand and sediment in your wells permitting free flowing of the oil.

The MILLER is made in diameters of 2½, 3, 3½, 4, 4¼, 5, 5½, 7 and 9 inches and lengths of 20, 25 and 30 feet. 5/32-inch wall thickness in REGULAR Type, ¼-inch wall tubes HEAVY Type Sand Pumps.

INTERCHANGEABLE BOTTOMS
To Meet Every Condition

● BAILER BOTTOM
With the Bailer Bottom installed the MILLER is quickly changed to a Bailer giving you a combination of either Bailer or a Sand Pump in one tool.

● SAND BOTTOM
Used when tools are run and when well is shot to quickly remove loose material.

● STAR BOTTOM
Used for cutting the sand loose.

● CHISEL BOTTOM
(In Pump)
With this bottom tightly packed sand can be easily broken in small pieces so it can be picked up in the pump.

Write for Descriptive Folder and Price List

See Page 1186 COMPOSITE CATALOG

PATENTED
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Globe Oil Tools Co.	—
Goodall Semi-Metallic Hose & Manufacturing Co.	—
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Goodyear Tire & Rubber Co.	—
H. P. Gott Manufacturing Co.	—
Gray-Kerotest	—
Gray Tool Co.	—
Greenhead Bit & Supply Co.	—
Guardian Loan & Trustee Co.	70
The Guiberson Corp.	—
Gulf Coast Machine & Supply Co.	—
Gulf Envelope Co.	—
Gulf Publishing Co.	6
Gulf States Utilities	—
Gustin-Bacon Co.	—
Halliburton Oil Well Cementing Co.	—
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Harrisburg Steel Corp.	—
Harnischfeger Corp.	—
Haynes Stellite Co.	—
Hazard Wire Rope Co.	—
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Hercules Tool Co.	—
Hewitt Rubber Corp.	—
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International Harvester Co.	—
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Byron Jackson Co.	—
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Landis Machine Co.	—
The Lane-Wells Co.	—
Larkin Packer Co.	—
The Layne & Bowler Co.	—
Lenox Hotel	—
A. Leschen & Sons Rope Co.	—
The Lincoln Electric Co.	—
Link Belt Co.	—
Lone Star Cement Corp.	—
Lord Baltimore Hotel	—
Lucey Boiler & Manufacturing Corp.	—
Neal Lucey Co.	—
Ludlow Valve Manufacturing Co.	—
Lufkin Foundry & Machine Co.	—
MacClatchie Manufacturing Co.	69
McAlpin Hotel	—
McCullough Tool Co.	—
Maintenance Engineering Corp.	73
D. S. Mair Machinery Corp.	—
Maloney Tank Manufacturing Co.	—
Manhattan Rubber Division	—
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Martin-Decker Corp.	—
Mayes Brothers, Inc.	—
McIntosh & Seymour Corp.	—
The Medart Co.	—
Merco Nordstrom Valve Co.	—
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Oil City Brass Works	—
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Oil-World Exposition, Inc.	—
O. K. Machine & Manufacturing Co.	—
Oklahoma Portland Cement Co.	—
Osage Metal Co.	—
Otis Pressure Control	—
Pacific Pump Works	—
The Parkersburg Rig & Reel Co.	—
Patterson-Ballagh Corp.	86
Pelican Well Tool & Supply Co.	81
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Petroleum Rectifying Co. of California	—
Petty Geophysical Engineering Co.	—
The Pierce Governor Co.	—
Pittsburgh Equitable Meter Co.	—
Pittsburgh Steel Co.	—
Portable Rig Co.	—
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Rector Well Equipment Co.	—
Reed Roller Bit Co.	—
Joseph Reid Gas Engine Co.	—
The Republic Rubber Co.	—
Republic Steel Corp.	—
Rice Hotel	—
R-F Electrical Co.	—
Rieber Laboratories	—
The Ridge Tool Co.	—
Rollway Bearing Co.	—
Dewey T. Ross Engineering Corp.	—
Royal Manufacturing Co.	—
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Schlumberger Well Surveying Corp.	—
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Shaffer Specialty Co.	—
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SKF Industries, Inc.	—
A. O. Smith Corp.	—
E. M. Smith Co.	—
Howard Smith Co.	—
Nowery J. Smith Supply Co.	—
South Chester Tube Co.	—
Southern Engine & Pump Co.	—
Southern Pacific Lines	—
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Stanley Tools	—
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Thornhill-Craver Co.	—
Thornton Tandem Co.	—
The Timken Roller Bearing Co.	—
Titusville Iron Works	—
Tnemec Co.	—
Tretolite Co.	—
Trimont Manufacturing Co.	—
Trinity Portland Cement Co.	—
Twin-Seat Valve Co.	—
Union Carbide & Carbon Corp.	—
Union Wire Rope Co.	—
United Gas System	—
United States Heat Treating Co.	—
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Wickwire Spencer Steel Co.	—
J. H. Williams & Co.	—
Williams Brothers, Inc.	—
Williamsport Wire Rope Co.	35
K. R. Wilson	—
Wilson-Snyder Manufacturing Co.	—
Wilson Manufacturing Co.	—
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The Wood Shovel & Tool Co.	—
Worthington Pump & Machinery Corp.	—
Yale & Towne Manufacturing Co.	—
Young Engine Corp.	—
Young Radiator Corp.	—
Youngstown Sheet & Tube Co.	—